NPTEL : NOC:Designing Learner-Centric MOOCs (Multi-Disciplinary)

Co-ordinators : Prof.Sridhar Iyer, Prof.Sahana Murthy, Dr.Jayakrishnan M., Dr.Sameer Sahasrabudhe

Lecture 1 - Course Introduction

Lecture 2 - Perspectives of the Teachers and Learners

Lecture 3 - Key Takeaways for Online Instruction

Lecture 4 - Evolution of MOOCs

Lecture 5 - Known Challenges

Lecture 6 - Need of LC in MOOCs Post Pandemic

Lecture 7 - Why LCM?

Lecture 8 - The LCM Model

Lecture 9 - What is an LeD?

Lecture 10 - Chunking a Lecture into LeD

Lecture 11 - Introducing Reflection Spot

Lecture 12 - Making Your Own LeD

Lecture 13 - Deciding Appropriateness of Various Mediums to Create LeDs

Lecture 14 - Example of Various Mediums from this course

Lecture 15 - What is an LbD?

Lecture 16 - Creating LbDs

Lecture 17 - Constructive Customized Feedback in LbDs

Lecture 18 - Giving Feedback for Open Ended Questions

Lecture 19 - What is an LxT?

Lecture 20 - Creating LxTs

Lecture 21 - Creating an Assimilation Quiz

Lecture 22 - Designing LxTs using LLMs

Lecture 23 - Licensing and Ethical usage

Lecture 24 - LeD : 5.1 Need of a Recap Week in a MOOC

Lecture 25 - Do's and Don'ts - Part 1

Lecture 26 - Do's and Don'ts - Part 2

Lecture 27 - LxT 5.2b- A Primer on Licensing Essentials

Lecture 28 - Recommendations for Effective LbDs

Lecture 29 - What is an LxI

Lecture 30 - Creating LxI with Reflection Quiz

Lecture 31 - LxI- Sharing Experiences

Lecture 32 - LxI- How to Achieve Learner - Learner Interaction?

Lecture 33 - LxI- Types of Focus Questions - 1

Lecture 34 - LxI- Types of Focus Questions - 2

Lecture 35 - Orchestrating your MOOC

Lecture 36 - Orchestration Dynamics in LCM

Lecture 37 - Assessment

Lecture 38 - How to Elicit Peer-to-Peer Interaction?

Lecture 39 - Incentivizing Participation in the Forum

Lecture 40 - Course Design in MOOC

Lecture 41 - From Regular Course to LCM

Lecture 42 - LeD 8.3 LCM Lite

Lecture 43 - Adopting LCM Model: Prof. Mandar Bhanushe

NPTEL : NOC:Introduction to Learning Analytics (Multi-Disciplinary)

Co-ordinators : Prof. Ramkumar Rajendran

Lecture 1 - Introduction to Learning Analytics

Lecture 2 - LA, EDM and Academic Analytics

Lecture 3 - Types of Learning Analytics - I

Lecture 4 - Types of Learning Analytics - II

Lecture 5 - Data Collection

Lecture 6 - Data Collection in TELE

Lecture 7 - Data collection in MOOC

Lecture 8 - Multichannel Data

Lecture 9 - Ethics and Data Privacy in LA

Lecture 10 - Descriptive Analytics

Lecture 11 - Data Visualization

Lecture 12 - YouTube Analytics Dashboard

Lecture 13 - MOOCs Analytics Dashboard

Lecture 14 - Predictive Analytics

Lecture 15 - Linear Regression

Lecture 16 - Weka demo and how to read the results

Lecture 17 - MOOC data for Course Project

Lecture 18 - Summary of the Course

NPTEL : NOC:Designing Learner-Centric e-Learning in STEM Disciplines (Multi-Disciplinary)

Co-ordinators : Prof.Sahana Murthy

Lecture 1 - Course Preview

Lecture 2 - What is this course about?

Lecture 3 - Course Format_Learner Centric MOOC (LCM)

Lecture 4 - E-Learning in STEM

Lecture 5 - Making online Teaching Decisions

Lecture 6 - Challenges in e-learning

Lecture 7 - What is Learner-centric Approach?

Lecture 8 - Promoting Learner Engagement with Content

Lecture 9 - Why and How to Design Interactive PDF?

Lecture 10 - What is an LeD?

Lecture 11 - Learning by Doing (LbD)

Lecture 12 - Articulation and Reflection

Lecture 13 - Construct your Own Understanding

Lecture 14 - Contextualized Learning

Lecture 15 - Feedback to Learners

Lecture 16 - Collaboration and Peer Learning

Lecture 17 - Addressing Diversity

Lecture 18 - Putting it All Together

Lecture 19 - Selection and Analysis of Effective Technology

Lecture 20 - Effective Integration of Technology

Lecture 21 - Instructional Design in e-learning

Lecture 22 - ADDIE Process of Instructional Design

Lecture 23 - Constructive Alignment

Lecture 24 - Implementing constructive alignment

Lecture 25 - Multimedia Principle and Contiguity Principle

Lecture 26 - Modality Principle and Redundancy Principle

Lecture 27 - Coherence Principle

Lecture 28 - Segmenting and Personalization Principles

Lecture 29 - Visual Communication Strategies for E-content

Lecture 30 - Forms of Learning

Lecture 31 - Integrating LC Elements in E-content

Lecture 32 - E-learning Design Process

Lecture 33 - Closing

NPTEL : NOC:Sustainable and Affordable Sanitation Solutions for Small Towns: Policy, Planning and Practice (Multi-Disciplinary)

Co-ordinators : Prof. N.C Narayanan

Lecture 1 - Introduction to the Issue of Sanitation

Lecture 2 - Overview of Sanitation in the country

Lecture 3 - Centralised or Decentralised?

Lecture 4 - Need for Participatory Planning

Lecture 5 - Context setting for the Alappuzha Project

Lecture 6 - Environmental Policy

Lecture 7 - Environmental Impact Assessment 2006 and National Urban Sanitation Plan

Lecture 8 - Environmental Governance - Challenges and Alternatives

Lecture 9 - Municipal Solid Waste Management

Lecture 10 - MSWM - Status, Policy, governance structure

Lecture 11 - Integrated Municipal Solid Waste Management

Lecture 12 - Plastic Waste Management

Lecture 13 - Municipal Solid Waste Management in Alappuzha

Lecture 14 - Liquid Waste Management - an Overview

Lecture 15 - Introduction to Faecal Sludge Management

Lecture 16 - Faecal Sludge Management for Alappuzha town

Lecture 17 - Introduction to liquid waste treatment technologies

Lecture 18 - Decentralized Waste Water Treatment system - An Introduction

Lecture 19 - Case studies - Decentralised waste water treatment

Lecture 20 - Decentralized waste water treatment systems plan for Alappuzha

Lecture 21 - History of Sanitation in Alappuzha

Lecture 22 - Organic waste management in Alappuzha

Lecture 23 - Inorganic waste management - Role of Kudumbashree and Haritha Karma Sena

Lecture 24 - Youth engagement for recaiming canals

Lecture 25 - Significance of institution building in reclaiming canals

NPTEL : NOC:Engineering Statistics (Multi-Disciplinary)

Co-ordinators : Prof. Manjesh Kumar Hanawal

Lecture 1 - Introduction to Probability

Lecture 2 - Consequences of Axioms

Lecture 3 - Interpretation of Probability

Lecture 4 - Total Probability law and Baye's Theorem - I

Lecture 5 - Total Probability law and Baye's Theorem - II

Lecture 6 - Random variables and Cumulative Density Function

Lecture 7 - Discrete and Continuous random variables - I

Lecture 8 - Discrete and Continuous random variables - II

Lecture 9 - Expectation and Variance

Lecture 10 - Function of Random variables

Lecture 11 - Generating RVs, Joint Distribution of RVs

Lecture 12 - Joint Distribution of RVs and Marginal densities

Lecture 13 - Covariance of Random variables

Lecture 14 - Moment Generating Functions

Lecture 15 - Conditional PMF and PDF

Lecture 16 - Law of Large numbers, Central Limit Theorem

Lecture 17 - Application of Central Limit Theorem - I

Lecture 18 - Application of Central Limit Theorem - II

Lecture 19 - Gamma and Chi-square distributions

Lecture 20 - Beta distributions and Exponential families

Lecture 21 - Random Sampling, Sample mean and Sample variance

Lecture 22 - Sampling from Gaussian distribution and t-distribution

Lecture 23 - Student's t- distribution

Lecture 24 - F-distribution and its properties

Lecture 25 - Convergence of Random variables and Consistency

Lecture 26 - Order statistics, Median and Percentiles

Lecture 27 - Generating random sample-Direct method

Lecture 28 - Generating random sample-Indirect method

Lecture 29 - Introduction to python

Lecture 30 - Python- Loops and Numpy library

Lecture 31 - Sufficiency Principles and Sufficient Statistics

Lecture 32 - Sufficient Statistics and Characterization of Sufficient Statistics

Lecture 33 - Characterization of Sufficient Statistics and Factorization Theorem

Lecture 34 - Example of Factorization Theorem, Minimal Sufficient Statistics

Lecture 35 - Minimal sufficient statistics

Lecture 36 - Test for minimal sufficient statistics withexamples, Ancillary Statistics

Lecture 37 - Likelihood Functions, Maximum Likelihood Estimator

Lecture 38 - Method of moments, Baye's Estimator

Lecture 39 - Evaluating Estimator, Cramer Rao Bound, Fisher Information

Lecture 40 - Evaluating Estimator, Cramer Rao Bound, Fisher Information (Continued...)

Lecture 41 - Hypothesis Testing, Likelihood Ratio Test

Lecture 42 - Hypothesis Testing, Bayes Test

Lecture 43 - Type I and II errors, Power Functions

Lecture 44 - Type I and II errors, Power Functions (Continued...)

Lecture 45 - Calculations of Power Functions

Lecture 46 - Unbiased Test, Uniformly Most Powerful Test,Neyman- Pearson Lemma, Interval Estimation

Lecture 47 - Interval Estimation

Lecture 48 - Interval Estimation (Continued...)

Lecture 49 - Constructiong Confidence Intervals from tests

Lecture 50 - Python- numpy and pandas functions II

Lecture 51 - Tutology of tests and confidence intervals

Lecture 52 - Tutology of tests and confidence intervals (Continued...)

Lecture 53 - p-value, p-test of significance of a statistical test

Lecture 54 - t-test and F-test, ANOVA

Lecture 55 - Non-parametric test, Goodness of fit, Chi- squared test

Lecture 56 - Distribution of Chi-squared test statistics

Lecture 57 - Kolmogrov-Smirnov test

Lecture 58 - Lilliefors's test and Explorator Data Analysis, Q-Q Plot and P-P Plot

Lecture 59 - Generating random samples using Python, Hypothesis Testing using Python

Lecture 60 - Generating random samples using Python, Hypothesis Testing using Python (Continued...)

NPTEL : NOC:Intelligent Feedback and Control (Multi-Disciplinary)

Co-ordinators : Prof. Leena Vachhani

Lecture 1 - Understanding PID Control

Lecture 2 - Process Model: Experimental Methods

Lecture 3 - Model Reduction

Lecture 4 - Disturbance Models and PID

Lecture 5 - PID Tuning Methods

Lecture 6 - PID Tuning Methods (Continued...)

Lecture 7 - Selection of PID Controller

Lecture 8 - Designing Controllers in a Jugaad Way

Lecture 9 - To explain why jugaad works....

Lecture 10 - Feedforward Design

Lecture 11 - State-space methods - Feedforward Control

Lecture 12 - Internal Model Control (IMC)

Lecture 13 - Overview of Control Techniques

Lecture 14 - Multivariable Control

Lecture 15 - Multivariable Control (Continued...)

Lecture 16 - Decoupler Design

Lecture 17 - Feedback Decouplers and Centralized Controllers

Lecture 18 - Large Scale MIMO Systems

Lecture 19 - Understanding irreducible transfer functions

Lecture 20 - Data Driven PID Control

Lecture 21 - Data Driven PID Control (Continued...)

Lecture 22 - Control and Learning

Lecture 23 - Control using Reinforcement Learning (RL)

Lecture 24 - Reinforcement learning based control for inverted pendulum

Lecture 25 - Policy Gradient based Reinforcement Learning

Lecture 26 - Using MATLAB for Reinforcement Learning

Lecture 27 - Course Summary

NPTEL : NOC:Introduction to Evolutionary Dynamics (Multi-Disciplinary)

Co-ordinators : Prof. Supreet Saini

Lecture 1 - Story of proposal of the theory of natural selection

Lecture 2 - Natural Selection; Patrick Matthew. History of life on earth

Lecture 3 - Where did life come from ?

Lecture 4 - Elements of theory of natural selection

Lecture 5 - Limitations of Darwins proposal of theory of natural selection

Lecture 6 - Natural selection in action in ecology

Lecture 7 - Central Dogma of Molecular Biology

Lecture 8 - Gene expression in biology

Lecture 9 - Numbers in E. coli

Lecture 10 - Growth and evolution in microbial populations

Lecture 11 - Mutations and errors in DNA replication

Lecture 12 - How does E. coli divide ?

Lecture 13 - How does evolution take place in sexually reproducing organisms ?

Lecture 14 - Growth in batch culture

Lecture 15 - How to define fitness in a batch culture ?

Lecture 16 - Model for growth in exponential growth

Lecture 17 - Logistic model for growth

Lecture 18 - Growth in a chemostat

Lecture 19 - Modeling genotype competition in a chemostat

Lecture 20 - Mutations and their selection coefficients

Lecture 21 - Distribution of fitness effects (DFE)

Lecture 22 - Sequence Space and Fitness Landscape

Lecture 23 - Epistasis and structure of landscape

Lecture 24 - Epistasis and structure of landscape

Lecture 25 - Landscape of antibiotic resistance

Lecture 26 - IPsec and Virtual Private Networks (VPNs) for Network-Layer Security - Part 1

Lecture 27 - IPsec and Virtual Private Networks (VPNs) for Network-Layer Security - Part 2

Lecture 28 - IPsec and Virtual Private Networks (VPNs) for Network-Layer Security - Part 3

Lecture 29 - Securing Wireless LANs - Part 1

Lecture 30 - Securing Wireless LANs - Part 2

Lecture 31 - Marbles in a jar continued

Lecture 32 - Moran Process

Lecture 33 - Transition probability in Moran process

Lecture 34 - Fixation probability

Lecture 35 - Fixation probability of a neutral mutation

Lecture 36 - Fixation probability of a beneficial mutation

Lecture 37 - Fixation probability of a beneficial mutation (Continued...)

Lecture 38 - Fixation probability of a beneficial mutation (Continued...)

Lecture 39 - Time of occurance of mutations

Lecture 40 - Graphical representation of evolving populations

Lecture 41 - Time of fixation of mutations

Lecture 42 - Estimating t_wait

Lecture 43 - Traveling wave model of microbial evolution

Lecture 44 - Deriving traveling wave model equations

Lecture 45 - dN/dS

Lecture 46 - dN/dS (Continued...), and how to do an evolution experiment in lab ?

Lecture 47 - Serial Subculture Experiment

Lecture 48 - Evolution in Chemostat and Mutation Accumulation Experiment

Lecture 49 - Megaplate Experiment

Lecture 50 - Long Term Evolution Experiment (LTEE)

Lecture 51 - Fitness trajectory with number of generations

Lecture 52 - Second order selection - mutation rate

Lecture 53 - Do fitness landscapes have a peak ?

Lecture 54 - Do fitness landscapes have a peak ? (Continued...)

Lecture 55 - Metabolic innovation in a lab evolution experiment ?

Lecture 56 - Selection vs. Drift

Lecture 57 - Historical Contingency in evolution

Lecture 58 - Unicellularity to Multicellularity

Lecture 59 - Adaptive diversification in microbial populations

Lecture 60 - Synonymous mutations have fitness effects. Mutation Accumulation Experiments

NPTEL : NOC:Similitude and Approximations in Engineering (Multi-Disciplinary)

Co-ordinators : Vijay Gupta

Lecture 1

Lecture 2

Lecture 3

Lecture 4

Lecture 5

Lecture 6

Lecture 7

Lecture 8

Lecture 9

Lecture 10

Lecture 11

Lecture 12

Lecture 13

Lecture 14

Lecture 15

Lecture 16

Lecture 17

Lecture 18

Lecture 19

Lecture 20

Lecture 21

Lecture 22

Lecture 23

Lecture 24

Lecture 25

Lecture 26

Lecture 27

NPTEL : NOC:Fundamental of Fluid Mechanics for Chemical and Biomedical Engineers (Multi-Disciplinary)

Co-ordinators : Unknown

Lecture 1 - Introduction

Lecture 2 - Fluid Mechanics and Chemical Engineering

Lecture 3 - Biomedical Applications of Fluid Mechanics

Lecture 4 - Vectors: A review

Lecture 5 - Introductory Concepts - 1

Lecture 6 - Introductory Concepts - 2

Lecture 7 - Flow Visualisation

Lecture 8 - Dimensional Analysis - Pi Theorem

Lecture 9 - Dimensional Analysis- Ipsen Method

Lecture 10 - Similitude

Lecture 11 - Pressure Distribution in a Static Fluid

Lecture 12 - Force of Submerged Surfaces

Lecture 13 - Buoyancy

Lecture 14 - Surface Tension

Lecture 15 - Reynolds Transport Theorem

Lecture 16 - Mass Conservation

Lecture 17 - Momentum Conservation - I

Lecture 18 - Momentum Conservation - II

Lecture 19 - Energy Conservation

Lecture 20 - Fluid Translation

Lecture 21 - Fluid Rotation and Deformation

Lecture 22 - Mass Conservation: Derivation

Lecture 23 - Mass Conservation: Cylindrical Coordinates

Lecture 24 - Navier Stokes Equations: Derivation

Lecture 25 - Flow Between Two Parallel Plates

Lecture 26 - Flow in a Falling Liquid Film

Lecture 27 - Fully-developed flow in a circular channel

Lecture 28 - Flow between two concentric cylinders

Lecture 29 - Lubrication Approximation

Lecture 30 - Creeping Flows

Lecture 31 - Equation of Motion in Streamline Coordinates

Lecture 32 - Irrotational Flow

Lecture 33 - Bernoulli's Equation and Flow Measurement

Lecture 34 - Boundary Layers

Lecture 35 - Momentum Integral Equation

Lecture 36 - Flow Separation and Drag

Lecture 37 - Introduction to Turbulence

Lecture 38 - Turbulent Flow in a Pipe

Lecture 39 - Turbulent Boundary Layers

Lecture 40 - Flow in Pipes: Major Losses

Lecture 41 - Flow in Pipes: Minor Losses

Lecture 42 - Flow in Pipes: Types of Problems

Lecture 43 - Cavitation and NPSH

NPTEL : NOC:Sustainable Power Generation Systems (Multi-Disciplinary)

Co-ordinators : Dr. Pankaj Kalita

Lecture 1 - Introductory lectuer

Lecture 2 - Fundamentals of solar thermal collector

Lecture 3 - Low temperature solar thermal power plant

Lecture 4 - Medium and high temperature solar thermal power plant

Lecture 5 - Thermal analysis of solar thermal power plant

Lecture 6 - Fundamentals and concept of solar PV power plant

Lecture 7 - Offgrid solar photovoltaic systems

Lecture 8 - Offgrid solar photovoltaic systems deisgn

Lecture 9 - Grid connected solar photovoltaic systems

Lecture 10 - Performance of grid connected solar photovoltaic systems

Lecture 11 - Introduction to wind power generation

Lecture 12 - Wind data analysis

Lecture 13 - Performance parameters and blade geometry

Lecture 14 - Betz limit and optimum tip speed ratio

Lecture 15 - Design of wind farm

Lecture 16 - Fundamentals and working principle

Lecture 17 - Analysis of small hydro power generation

Lecture 18 - Introduction to biomass power generation

Lecture 19 - Biochemical conversion for electricity generation

Lecture 20 - Thermochemical conversion of solid fuels and gasification system

Lecture 21 - Hydrogen energy

Lecture 22 - Fuel cells technologies - Part I

Lecture 23 - Fuel cells technologies - Part II

Lecture 24 - Hydrogen energy tutorial

Lecture 25 - Fundamentals and methods of geothermal energy harvesting

Lecture 26 - Analysis of geothermal plant and resources

Lecture 27 - Fundamentals and working of ocean thermal energy conversion systems

Lecture 28 - Analysis of close rankine cycle OTEC system

Lecture 29 - Fundamentals and working of tidal energy conversion systems

Lecture 30 - Fundamentals and working of wave energy conversion systems

Lecture 31 - Overview and analysis of thermal energy storage

Lecture 32 - Fundamentals and analysis of mechanical energy storage system

Lecture 33 - Fundamentals and analysis of electro chemical energy storage system

Lecture 34 - Summary and numerical exercise

Lecture 35 - Fundamentals and methodology of evaluation of energy economics

Lecture 36 - Case study involving energy economics of biomass power generation system and LCA

Lecture 37 - Course Summary

NPTEL : NOC:Foundation Certificate in Palliative Care (Multi-Disciplinary)

Co-ordinators : Prof. Geeta Joshi, Prof. Piyush Gupta

Lecture 1 - Course Intro

Lecture 2 - Discussion on Course

Lecture 3 - Faculty Intro: Dr. Geeta Joshi and Dr. Piyush Gupta

Lecture 4 - Faculty Intro: Dr. Abhijit Dam

Lecture 5 - Principles of Palliative Care

Lecture 6 - Integrating Science

Lecture 7 - Growth of Palliative Care

Lecture 8 - Holistic Care

Lecture 9 - Palliative Care Concepts - Interview

Lecture 10 - National Scenario of Palliative Care

Lecture 11 - National Scenario

Lecture 12 - WHO Perspective

Lecture 13 - Allopathy

Lecture 14 - Ayush Ministry

Lecture 15 - Ayurveda

Lecture 16 - Ayur Siddha Nature Yoga

Lecture 17 - Naturopathy

Lecture 18 - NHAM

Lecture 19 - Ayush Modules

Lecture 20 - Unani

Lecture 21 - Homeopathy

Lecture 22 - PC Delivery

Lecture 23 - PC Delivery

Lecture 24 - Practicing PC

Lecture 25 - Home Based PC

Lecture 26 - Home Care

Lecture 27 - Home Nursing

Lecture 28 - Hospice

Lecture 29 - Caregiver

Lecture 30 - Caregiver

Lecture 31 - Integrative PC

Lecture 32 - AYUSH in PC

Lecture 33 - Siddha in PC

Lecture 34 - Siddha

Lecture 35 - Siddha

Lecture 36 - Intro Yoga

Lecture 37 - Yoga

Lecture 38 - Yoga and Stress

Lecture 39 - Introduction Pain

Lecture 40 - Classification Pain

Lecture 41 - Pain Assessment

Lecture 42 - Total Pain

Lecture 43 - Hospice Total Pain

Lecture 44 - WHO 3 Step Ladder

Lecture 45 - Pain Management

Lecture 46 - Cancer Pain

Lecture 47 - Pain Assessment

Lecture 48 - Symptom Assessment

Lecture 49 - Holistic Symptom Management

Lecture 50 - Constipation

Lecture 51 - Delirium

Lecture 52 - Dyspnea

Lecture 53 - Hygiene Bedsores

Lecture 54 - Pressure Sore

Lecture 55 - Secretions

Lecture 56 - Fungating

Lecture 57 - Fungating Wound

Lecture 58 - Fungating pdf

Lecture 59 - Oral NGT Catheter

Lecture 60 - Oral NGT Cathe pdf

Lecture 61 - Nutrition

Lecture 62 - Communication

Lecture 63 - Communications

Lecture 64 - Communication in PC

Lecture 65 - Body Language

Lecture 66 - Communicating Patients

Lecture 67 - Good and Bad Communication

Lecture 68 - Good and Bad Communication

Lecture 69 - Communication Bridging Gap

Lecture 70 - Overview of Psychological Reactions

Lecture 71 - Psychological Reactions

Lecture 72 - Psychological Aspects

Lecture 73 - Communicating with Patient

Lecture 74 - Breaking Bad News

Lecture 75 - Distress and Denial

Lecture 76 - BBN Collusion Denial

Lecture 77 - Emotional Reactions Breaking Denial

Lecture 78 - Communication Interview

Lecture 79 - Psychological Aspects

Lecture 80 - Anxiety Depression Distress

Lecture 81 - Counsellor in PC

Lecture 82 - Caregiver Burnout Yoga

Lecture 83 - PC in Elderly

Lecture 84 - Spirituality

Lecture 85 - Spirituality and Religion

Lecture 86 - Laws of Karma

Lecture 87 - Last Days of Life

Lecture 88 - Care of Dying and Bereavement

Lecture 89 - Quality of Death

Lecture 90 - Death

Lecture 91 - Grief and Bereavement

Lecture 92 - Ethics in PC

Lecture 93 - Volunteering

Lecture 94 - Volunteers

Lecture 95 - Volunteers

Lecture 96 - Community

Lecture 97 - Community Based PC

Lecture 98 - Community Based PC

Lecture 99 - Network Neighborhood

Lecture 100 - Nurse in Home Care

Lecture 101 - Care of Dying

Lecture 102 - Safety Precaution

Lecture 103 - Self Care

Lecture 104 - Respite Care

Lecture 105 - IT in PC

Lecture 106 - COC

Lecture 107 - Sandhi

Lecture 108 - Cancer Aid Society

Lecture 109 - Alpha

Lecture 110 - PC Services in Punjab

NPTEL : NOC:Multi-Criteria Decision Making and Applications (Multi-Disciplinary)

Co-ordinators : Prof. Raghu Nandan Sengupta

Lecture 1 - Example 01, 02, 03

Lecture 2 - Example 03, 04, 05, 06

Lecture 3 - Example 04, 05, 06 (Continued...)

Lecture 4 - Example 06 (Continued...), Example 07

Lecture 5 - Example 06 (Continued...), Example 07

Lecture 6 - MCDM: Definitions, Theory of Choice, MCDM Axioma, Condorcet Paradox

Lecture 7 - Theory of Choice, MCDM Axioms, Condorcet Paradox

Lecture 8 - MCDM Axioms, Condorcet Paradox, Utility Theory

Lecture 9 - Utility Theory, Expected value of Utility Function, Lotteries, Rational Choice, Properties of Utility Function

Lecture 10 - Rational Choice, Properties of Utility Function, Risk Aversion, Neutrality, Seeking Properties, Marginal Utility, Absolute Risk Aversion, Relative Risk Aversion

Lecture 11 - Utility Theory Examples, Properties of Utility Function, Risk Aversion, Neutrality, Seekingi Properties, Marginal Utility, Absolute Risk Aversion, Relative Risk Aversion

Lecture 12 - Properties of Utility Function, Risk Aversion, Neutrality, Seeking Properties, Marginal Utility, Absolute Risk Aversion, Relative Risk Aversion, Example of Utility Functions

Lecture 13 - Example of Utility Functions, Certainty Equivalent, Geomatric Mean Methods, Safety First Principle, Stochastic Dominance, Hyperbolic Absolute Risk Aversion Function

Lecture 14 - Example of Utility Functions, Certainty Equivalent, Geomatric Mean Methods, Safety First Principle, Stochastic Dominance, Hyperbolic Absolute Risk Aversion Function

Lecture 15 - Certainty Equivalent, Geomatric Mean Methods, Safety First Principle, Stochastic Dominance, Hyperbolic Absolute Risk Aversion Function

Lecture 16 - Geomatric Mean Methods, Safety First Principle, Stochastic Dominance, Hyperbolic Absolute Risk Aversion Function

Lecture 17 - Safety First Principle, Stochastic Dominance, Hyperbolic Absolute Risk Aversion Function

Lecture 18 - Safety First Principle, Stochastic Dominance, Hyperbolic Absolute Risk Aversion Function

Lecture 19 - Stochastic Dominance, Hyperbolic Absolute Risk Aversion Function

Lecture 20 - Stochastic Dominance, Hyperbolic Absolute Risk Aversion Function

Lecture 21 - Concept of Pareto Optimally in 2D Space, Effective Versus Inefficient Solutions, Karusch Kuhn Tucker Condition, Scales of Measurements: Nominal Scale, Ordinal Scale, Interval Scale, Ratio Scale, Goal Programming

Lecture 22 - Concept of Pareto Optimality in 2D Space, Effective Versus Inefficient Solutions, Karusch Kuhn Tucker Condition, Scales of Measurements: Nominal Scale, Ordinal Scale, Interval Scale, Ratio Scale, Goal Programming

Lecture 23 - Pareto Optimality, Property of Dominance, Strong Pareto Optimality, Weak Pareto Optimality, Concepts of Pareto Optimality in 2D Space, Effective versus Inefficient Solutions

Lecture 24 - Concept of Pareto Optimality in 2D Space, Effective Versus Inefficient Solutions, Karusch Kuhn Tucker Condition, Scales of Measurements: Nominal Scale, Ordinal Scale, Interval Scale, Ratio Scale, Goal Programming

Lecture 25 - Concept of Pareto Optimality in 2D Space, Effective Versus Inefficient Solutions, Karusch Kuhn Tucker Condition, Scales of Measurements: Nominal Scale, Ordinal Scale, Interval Scale, Ratio Scale, Goal Programming

Lecture 26 - Concept of Pareto Optimality in 2D Space, Effective Versus Inefficient Solutions, Karusch Kuhn Tucker Condition, Scales of Measurements: Nominal Scale, Ordinal Scale, Interval Scale, Ratio Scale, Goal Programming

Lecture 27 - Concept of Pareto Optimality in 2D Space, Effective Versus Inefficient Solutions, Karusch Kuhn Tucker Condition, Scales of Measurements: Nominal Scale, Ordinal Scale, Interval Scale, Ratio Scale, Goal Programming

Lecture 28 - Scales of Measurements: Nominal Scale, Ordinal Scale, Interval Scale, Ratio Scale, Goal Programming

Lecture 29 - Pareto Optimality, Concept of Pareto Optimality, Goal Programming

Lecture 30 - Pareto Optimality, Pareto Curves, Goal Programming

Lecture 31 - Goal Programming, Concepts of Pareto Optimality in 2D Space for LP, Concepts of Pareto Optimality in 3D Space for QP

Lecture 32 - Concepts of Pareto Optimality in 2D Space for LP, Concepts of Pareto Optimality in 3D Space for QP

Lecture 33 - LP Example of Goal Programming/MCDM, NLP Example of Goal Programming/MCDM

Lecture 34 - LP Example of Goal Programming/MCDM, NLP Example of Goal Programming/MCDM (Continued...)

Lecture 35 - LP Example of Goal Programming/MCDM, NLP Example of Goal Programming/MCDM (Continued...)

Lecture 36 - LP Example of Goal Programming/MCDM, NLP Example of Goal Programming/MCDM (Continued...)

Lecture 37 - Quadratic Programming, Goal Programming

Lecture 38 - Multi Attribute Utility Theory, TOPSIS

Lecture 39 - Multi Attribute Utility Theory, TOPSIS

Lecture 40 - Technique For Order Preference by Similarity to Ideal Solutions (TOPSIS)

Lecture 41 - Technique For Order Preference by Similarity to Ideal Solutions (TOPSIS)

Lecture 42 - Technique For Order Preference by Similarity to Ideal Solutions (TOPSIS)

Lecture 43 - Technique For Order Preference by Similarity to Ideal Solutions (TOPSIS), Elimination and Choice Translating Reality (ELECTRE)

Lecture 44 - Elimination and Choice Translating Reality (ELECTRE)

Lecture 45 - Elimination and Choice Translating Reality (ELECTRE)

Lecture 46 - Elimination and Choice Translating Reality (ELECTRE)

Lecture 47 - Elimination and Choice Translating Reality (ELECTRE)

Lecture 48 - Elimination and Choice Translating Reality (ELECTRE), e-ELECTRE

Lecture 49 - Elimination and Choice Translating Reality (ELECTRE), e-ELECTRE

Lecture 50 - Elimination and Choice Translating Reality (ELECTRE), e-ELECTRE, VIKOR

Lecture 51 - VIKOR (VIsekriterijumska Optimizacija I Kompromisno Resenje)

Lecture 52 - VIKOR (VIsekriterijumska Optimizacija I Kompromisno Resenje)

Lecture 53 - Analytical Hierarchy Process (AHP)

Lecture 54 - Analytical Hierarchy Process (AHP) (Continued...)

Lecture 55 - Analytical Hierarchy Process (AHP) (Continued...)

Lecture 56 - Data Envelopment Analysis (DEA)

Lecture 57 - Data Envelopment Analysis (DEA)

Lecture 58 - Decision Tree Analysis

Lecture 59 - Decision Tree Analysis (Continued...)

Lecture 60 - Example in Multi Objective Decision Making

NPTEL : NOC:Basic Certificate in Palliative Care (Multi-Disciplinary)

Co-ordinators : Prof. Geeta Joshi, Prof. Piyush Gupta

Lecture 1 - Prelude

Lecture 2 - Prologue BCPC

Lecture 3 - Introductory Dialogue - Week 1

Lecture 4 - Basics of Palliative Care

Lecture 5 - Community Participation

Lecture 6 - Communication Skills in Palliative Care - Part I

Lecture 7 - Communication Skills in Palliative Care - Part II

Lecture 8 - Introductory Dialogue - Week 2

Lecture 9 - What is Active Listening ?

Lecture 10 - Are You Really Listening ?

Lecture 11 - Active Listening Skills

Lecture 12 - Communication Skills for Health Professionals

Lecture 13 - Communication Competency in Health Professional

Lecture 14 - Talking About Death

Lecture 15 - Introductory Dialogue - Week 3

Lecture 16 - Psychological Aspects in PC

Lecture 17 - What is Psychological Distress ?

Lecture 18 - Types of Psychological Distress

Lecture 19 - Kessler Psychological Distress Scale

Lecture 20 - Generalized Anxiety Disorder (GAD)

Lecture 21 - Guilt and Regret

Lecture 22 - Introductory Dialogue - Week 4

Lecture 23 - Cultural Aspects in Palliative Care

Lecture 24 - Spirituality (FAQs)

Lecture 25 - Spiritual Distress

Lecture 26 - Ways to Lead Spiritual Life !

Lecture 27 - Introductory Dialogue - Week 5

Lecture 28 - What is Stress and Burnout

Lecture 29 - Some Tips to Manage Stress

Lecture 30 - Burnout in Health Care Professionals

Lecture 31 - Avoiding Burnout in Health Care Professionals

Lecture 32 - Voluteers to Prevent Burnout !

Lecture 33 - Self Care

Lecture 34 - Introductory Dialogue - Week 6

Lecture 35 - Ethical Aspects of End of Life

Lecture 36 - Impact of Bereavement on Family

Lecture 37 - Kubler-Ross Model

Lecture 38 - Theoretical Models of Grief and Bereavement

Lecture 39 - Psychology of Grief and Bereavement

Lecture 40 - Management of Grief and Bereavement

Lecture 41 - Introductory Dialogue - Week 7

Lecture 42 - Metastatic Bone Pain Management

Lecture 43 - How to Prescribe ENDs ?

Lecture 44 - Safe Use of ENDs

Lecture 45 - Neuropathic Pain and Its Management

Lecture 46 - Introduction to Intervention Pain Management

Lecture 47 - Introductory Dialogue - Week 8

Lecture 48 - Gastrointestinal Symptoms

Lecture 49 - Respiratory Symptoms Management - Part I

Lecture 50 - Respiratory Symptoms Management - Part II

Lecture 51 - Delirium and Dementia

Lecture 52 - Emergencies in Palliative Medicine

Lecture 53 - Recent Advances in Nausea and Vomiting

Lecture 54 - Introductory Dialogue - Week 9

Lecture 55 - Nursing Care Plans: Case Scenario

Lecture 56 - Bladder and Bowel Care

Lecture 57 - Stoma Care - Part I

Lecture 58 - Stoma Care - Part II

Lecture 59 - Skin Care in Colostomy

Lecture 60 - Introductory Dialogue - Week 10

Lecture 61 - Importance of Prognostication

Lecture 62 - Diagnosing the Dying !

Lecture 63 - Facing Death: How to Help ?

Lecture 64 - Subcutaneous Route

Lecture 65 - Introductory Dialogue - Week 11

Lecture 66 - National Health Mission (NHM)

Lecture 67 - Aushman Bharat

Lecture 68 - Government Schemes for Palliative Care

Lecture 69 - NDPS Rules 2015

Lecture 70 - Delivery Models of Palliative Care

Lecture 71 - Introductory Dialogue - Week 12

Lecture 72 - Availability of ENDs and Advocacy

Lecture 73 - Availability of ENDs and Advocacy

Lecture 74 - Euthanasia

Lecture 75 - Advance Directive

Lecture 76 - History of Opium - Part I

Lecture 77 - History of Opium - Part II

Lecture 78 - Panel Discussion

NPTEL : NOC:Certificate in Integrative Palliative Care - III (Multi-Disciplinary)

Co-ordinators : Prof. Piyush Gupta, Prof. Geeta Joshi, Prof. Yashavant Joshi

Lecture 1 - Prologue CIPC

Lecture 2 - Introductory Dialogue

Lecture 3 - Basics of Palliative Care

Lecture 4 - Integrative Palliative Care

Lecture 5 - Complementary Medicine

Lecture 6 - Community Participation in PC

Lecture 7 - Communication Skills in Palliative Care - Part I

Lecture 8 - Communication Skills in Palliative Care - Part II

Lecture 9 - Introductory Dialogue

Lecture 10 - What is Naturopathy?

Lecture 11 - Naturopathy Basic Concepts and Principles

Lecture 12 - Air Therapy

Lecture 13 - Helio Therapy

Lecture 14 - Hydro Therapy

Lecture 15 - Mud Therapy

Lecture 16 - Fasting Therapy

Lecture 17 - Massage Therapy

Lecture 18 - Magnet Therapy

Lecture 19 - Introduction (The Integrative Role of Yoga in Palliative Care)

Lecture 20 - Overview of Yoga in Palliative Care, Challenges and Therepeutic Role of Yoga

Lecture 21 - Concept of Ashtang Yoga for Enhancing QOL

Lecture 22 - Health and Diseases According to Yoga

Lecture 23 - Role of Yoga as Preventive and Curative Approach in Palliative Care

Lecture 24 - Ganesh Asana, Chair Surya Namaskar Practical

Lecture 25 - Sukshma Asana Practical

Lecture 26 - Therapeutic Role of Mudra for Mental and Emotional Health

Lecture 27 - Yoga Interventions for Physical and Mental Health

Lecture 28 - Role of Pratyahara in Palliative Care

Lecture 29 - Relaxation Technique of Yoga Nidra for Palliative Care

Lecture 30 - Yoga Intervention for Enhancing Spiritual Health

Lecture 31 - Understanding Cancer and Yoga Practices for Dealing with Cancer

Lecture 32 - Introduction (Pranic Healing)

Lecture 33 - Role of Pranic Healing in Palliative Care

Lecture 34 - Pranic Healing Five Elements

Lecture 35 - Chakaras

Lecture 36 - Twin Heart Meditation

Lecture 37 - Forgiveness

Lecture 38 - Gratitude

Lecture 39 - Introductory Dialogue (Energy Healing)

Lecture 40 - Remote Energy Healing

Lecture 41 - Reiki

Lecture 42 - Reiki: Symbols and Meaning

Lecture 43 - Reiki and Pranic Healing

Lecture 44 - Qigong

Lecture 45 - Tai Chi

Lecture 46 - Emotional Freedom Technique (EFT)

Lecture 47 - Introduction (Acupressure and Acupuncture)

Lecture 48 - Meridians - A System of Pathway !

Lecture 49 - Acupressure: A Beginner's Guide

Lecture 50 - Popular Acupressure Points

Lecture 51 - Acupuncture Miracle Remedy for Everything ?

Lecture 52 - Acupressure and Acupuncture, What is the Difference ?

Lecture 53 - Auricular Acupuncture

Lecture 54 - Introduction (Aroma Therapy)

Lecture 55 - Introduction to Aroma Therapy

Lecture 56 - Essential Oils

Lecture 57 - Clinical Aromatherapy in Pallative Care

Lecture 58 - Aroma Therapy - Incorporating into Daily Life !

Lecture 59 - Aroma Therapy - Myths and FAQs

Lecture 60 - Introduction

Lecture 61 - Music Therapy

Lecture 62 - Music Therapy - History and Benefits

Lecture 63 - Music Therapy (Palliative Care)

Lecture 64 - Tools and Activities

Lecture 65 - Interventions and Raga

Lecture 66 - Introduction

Lecture 67 - Diet Therapy

Lecture 68 - Nutrition - Does it Really Matter ?

Lecture 69 - Eat Natural Food! Boot Your Energy Naturally!

Lecture 70 - Stop Eating Junk Food!

Lecture 71 - Role of Nutrition Palliative Care

Lecture 72 - Dispelling Nutrition Myths! Unveiling the Truth for Better Health

Lecture 73 - Nutrition At the End of Life!

Lecture 74 - Introduction (Expressive Art Therapy)

Lecture 75 - Expressive Art Therapy

Lecture 76 - Art Therapy

Lecture 77 - Sand Play Therapy: A Healing Journey

Lecture 78 - Colour Therapy

Lecture 79 - Writing Therapy

Lecture 80 - Introduction

Lecture 81 - Religiosity, Spirituality and Palliative Medicine

Lecture 82 - Exploring the Science Behind Spirituality

Lecture 83 - Loving Yourself

Lecture 84 - Spiritual Distress

Lecture 85 - Panel Discussion: Death and Dying

Lecture 86 - Introduction (First Aid)

Lecture 87 - Introduction to First Aid

Lecture 88 - Purpose of First Aid Training

Lecture 89 - Emergency Procedure

Lecture 90 - Cardiopulmonary Resuscitation CPR

Lecture 91 - Making a Splint

Lecture 92 - Recovery Position

Lecture 93 - Emergency Scene Management (ESM)

NPTEL : NOC:Fuzzy Logic and Neural Networks (Multi-Disciplinary)

Co-ordinators : Prof. Dilip Kumar Pratihar

Lecture 1 - Introduction to Fuzzy Sets

Lecture 2 - Introduction to Fuzzy Sets (Continued...)

Lecture 3 - Introduction to Fuzzy Sets (Continued...)

Lecture 4 - Introduction to Fuzzy Sets (Continued...)

Lecture 5 - Introduction to Fuzzy Sets (Continued...)

Lecture 6 - Introduction to Fuzzy Sets (Continued...)

Lecture 7 - Applications of Fuzzy Sets

Lecture 8 - Applications of Fuzzy Sets (Continued...)

Lecture 9 - Applications of Fuzzy Sets (Continued...)

Lecture 10 - Applications of Fuzzy Sets (Continued...)

Lecture 11 - Applications of Fuzzy Sets (Continued...)

Lecture 12 - Applications of Fuzzy Sets (Continued...)

Lecture 13 - Applications of Fuzzy Sets (Continued...)

Lecture 14 - Applications of Fuzzy Sets (Continued...)

Lecture 15 - Applications of Fuzzy Sets (Continued...)

Lecture 16 - Applications of Fuzzy Sets (Continued...)

Lecture 17 - Optimizationof Fuzzy Reasoning and Clustering Tool

Lecture 18 - Optimizationof Fuzzy Reasoning and Clustering Tool (Continued...)

Lecture 19 - Optimizationof Fuzzy Reasoning and Clustering Tool (Continued...)

Lecture 20 - Optimizationof Fuzzy Reasoning and Clustering Tool (Continued...)

Lecture 21 - Some Examples of Neural Networks

Lecture 22 - Some Examples of Neural Networks (Continued...)

Lecture 23 - Some Examples of Neural Networks (Continued...)

Lecture 24 - Some Examples of Neural Networks (Continued...)

Lecture 25 - Some Examples of Neural Networks (Continued...)

Lecture 26 - Some Examples of Neural Networks (Continued...)

Lecture 27 - Some Examples of Neural Networks (Continued...)

Lecture 28 - Some Examples of Neural Networks (Continued...)

Lecture 29 - Some Examples of Neural Networks (Continued...)

Lecture 30 - Some Examples of Neural Networks (Continued...)

Lecture 31 - Optimal Designs of Neural Networks

Lecture 32 - Optimal Designs of Neural Networks (Continued...)

Lecture 33 - Neuro-Fuzzy System

Lecture 34 - Neuro-Fuzzy System (Continued...)

Lecture 35 - Neuro-Fuzzy System (Continued...)

Lecture 36 - Neuro-Fuzzy System (Continued...)

Lecture 37 - Concepts of Soft Computing and Expert Systems

Lecture 38 - Concepts of Soft Computing and Expert Systems (Continued...)

Lecture 39 - A Few Applications

Lecture 40 - A Few Applications (Continued...)

Lecture 41 - A Few Applications (Continued...)

Lecture 42 - A Few Applications (Continued...)

NPTEL : NOC:Entrepreneurship Essentials (Multi-Disciplinary)

Co-ordinators : Prof. Manoj Kumar Mondal

Lecture 1 - Economic Contributions of Entrepreneurs

Lecture 2 - Definition, Motivation and Types of Entrepreneurship

Lecture 3 - Vision, Mission and Values

Lecture 4 - Entrepreneurial Qualities

Lecture 5 - Two Inspiring Stories

Lecture 6 - Myths and Realities around Entrepreneurship

Lecture 7 - Causes of Failure of Startups

Lecture 8 - Why Startups Fail (Continued...)

Lecture 9 - Forms of Legal Entities

Lecture 10 - Factors Driving Competitive Advantages

Lecture 11 - Marketing for Startups - I

Lecture 12 - Marketing for Startups - II

Lecture 13 - Marketing for Startups - III

Lecture 14 - Marketing Research

Lecture 15 - Marketing Research (Continued...)

Lecture 16 - Business Model Canvas

Lecture 17 - Value Proposition Canvas

Lecture 18 - Illustration of Business Model Canvas

Lecture 19 - Features of Winning Business Models

Lecture 20 - Business Model Innovation

Lecture 21 - Identifying Opportunities Based on Trend

Lecture 22 - Circle of Competence and Effectuation

Lecture 23 - Lean Startup - I

Lecture 24 - Lean Startup - II

Lecture 25 - Lean Startup - III

Lecture 26 - Design and Innovation - I

Lecture 27 - Design and Innovation - II

Lecture 28 - Design and Innovation - III

Lecture 29 - Design and Innovation - IV

Lecture 30 - Design and Innovation - V

Lecture 31 - Introduction to Financial Statements

Lecture 32 - Introduction to Financial Statements (Continued...)

Lecture 33 - Introduction to Financial Statements (Continued...)

Lecture 34 - Introduction to Financial Statements (Continued...)

Lecture 35 - Introduction to Financial Statements (Continued...)

Lecture 36 - Introduction to Financial Statements (Continued...)

Lecture 37 - Introduction to Financial Statements (Continued...)

Lecture 38 - Depreciation and Amortization and Treatment of Capital Gain or Loss from Sale of Fixed Asset

Lecture 39 - Cost, Volume, Profit: Break-Even Point Analysis - I

Lecture 40 - Cost, Volume, Profit: Break-Even Point Analysis - II

Lecture 41 - Founding Team and Early Recruits

Lecture 42 - Business Plan - I

Lecture 43 - Business Plan - II

Lecture 44 - Pitching the Business Plan - I

Lecture 45 - Pitching the Business Plan - II

Lecture 46 - Funding New Venture - I

Lecture 47 - Funding New Venture - II

Lecture 48 - Funding New Venture - III

Lecture 49 - Funding New Venture - IV

Lecture 50 - Funding New Venture - V

Lecture 51 - Some Dos and Donts

Lecture 52 - Go-To-Market Strategies - I

Lecture 53 - Go-To-Market Strategies - II

Lecture 54 - Capital Budgeting Decisions

Lecture 55 - Capital Budgeting Decisions (Continued...)

Lecture 56 - Start up Valuation - I

Lecture 57 - Start up Valuation - II

Lecture 58 - Human Resource Management - I

Lecture 59 - Human Resource Management - II

Lecture 60 - Growth Strategies

NPTEL : NOC:Roadmap for Patent Creation (Multi-Disciplinary)

Co-ordinators : Prof. Gouri Gargate

Lecture 1 - Roadmap for patent creation - Introduction

Lecture 2 - Roadmap for patent creation - Property and IP

Lecture 3 - Roadmap for patent creation - IPR

Lecture 4 - Roadmap for patent creation - IP and future areas

Lecture 5 - Roadmap for patent creation - Patent - Introduction

Lecture 6 - Patent searching and analysis

Lecture 7 - Patent-Definition

Lecture 8 - Novelty

Lecture 9 - Non obviousness

Lecture 10 - Industrial application

Lecture 11 - Parts of patent document

Lecture 12 - Terminologies and codes used in a patent document

Lecture 13 - How to read a patent ? - I

Lecture 14 - How to read a patent ? - II

Lecture 15 - How to read a patent ? - III

Lecture 16 - Roadmap for patent creation - IP identification tool

Lecture 17 - Roadmap for patent creation - Patentability tool

Lecture 18 - Roadmap for patent creation - IP audit framework

Lecture 19 - Roadmap for patent creation - Public patent databases

Lecture 20 - Roadmap for patent creation - Capsule version

Lecture 21 - Types of patent

Lecture 22 - Patent filing procedure in India

Lecture 23 - Patent timelines - India and PCT

Lecture 24 - Inventions not patent in India

Lecture 25 - Indicators for patentability

Lecture 26 - Use of patent database for research/project topic identification

Lecture 27 - Importance of laboratory notebook

Lecture 28 - In which technical category my invention falls - IPC

Lecture 29 - Patent - Statutory differences between India, Europe and USA

Lecture 30 - Identification of inventor and applicant and their rights

Lecture 31 - Developing your own IP system

Lecture 32 - When to publish and when to patent (confidentiality)

Lecture 33 - Statutory exceptions (anticipation)

Lecture 34 - Procedure for patent filing (Forms and fees)

Lecture 35 - Interaction with IP attorney (Initial drafting, FER reply and hearing)

Lecture 36 - Research/project planning

Lecture 37 - Post patent filing requirments

Lecture 38 - Patent commercialization

Lecture 39 - Capsule version

NPTEL : NOC:Accreditation and Outcome based Learning (Multi-Disciplinary)

Co-ordinators : Prof. Shyamal Kumar Das Mandal

Lecture 1 - Introduction

Lecture 2 - Challenges and Needs of 21st Century Education

Lecture 3 - Accreditation

Lecture 4 - Accreditation (Continued...)

Lecture 5 - Outcome based Learning

Lecture 6 - Important Steps in Outcome based education

Lecture 7 - Introduction to Taxonomies of Learning and Cognitive Domains of Learning

Lecture 8 - Psychomotor Domain and Affective Domain of Learning

Lecture 9 - Instructional Objectives or Outcome

Lecture 10 - Need and Use of Instructional Objectives or Outcome

Lecture 11 - Example of Different Instructional Objectives or Outcome and their Cognitive Level

Lecture 12 - Outcome-based Curriculum Design

Lecture 13 - Outcome-based Curriculum Design (Continued...)

Lecture 14 - Outcome-based Curriculum Design software framework

Lecture 15 - Course outcome, Module outcome and lecture/unit outcome and teaching learning process

Lecture 16 - Mapping of outcome based curriculum with Graduate attribute

Lecture 17 - Introduction to Assessment and Evaluation

Lecture 18 - Formative Assessment and Summative Assessments

Lecture 19 - Test Item analysis

Lecture 20 - Test Item analysis (Continued...)

Lecture 21 - Evaluation Rubrics

Lecture 22 - Mission and Vision, Program Educational Objectives (PEOs), Program Outcome (PO) and their Consistency

Lecture 23 - Mapping of course outcome and Program Outcome

Lecture 24 - Attainment of Program outcome and course outcome

Lecture 25 - Calculation of direct attainment

Lecture 26 - Calculation of Indirect Attainment

Lecture 27 - Introduction to Tutored Video Instruction (TVI)

Lecture 28 - TVI Learning Improvement Data - as reported in literature

Lecture 29 - Use of TVI as ELNET-3L program

Lecture 30 - Lessons on Good Teaching from ELNET-3L

Lecture 31 - Evaluation of Teaching Quality

Lecture 32 - Evaluation of Teaching Quality - A Research Proposal

Lecture 33 - Evaluation of Teaching Quality - A Research Proposal (Continued...)

Lecture 34 - Evaluation of Teaching Quality - A Research Proposal (Continued...)

Lecture 35 - Assessment and Evaluation - to Improve Teaching

Lecture 36 - Item Analysis - Theory and Practice

Lecture 37 - Learning Styles and Learning Approaches

Lecture 38 - Good Teaching Attributes and Characteristics

Lecture 39 - Teacher Effectiveness Research

Lecture 40 - Teacher Effectiveness Research (Continued...)

Lecture 41 - Teaching Learning Process using Outcome based Education

NPTEL : NOC:Introduction to Environmental Engineering and Science - Fundamental and Sustainability Concepts (Multi-Disciplinary)

Co-ordinators : Prof. Brajesh Kumar Dubey

Lecture 1 - Sustainability Concepts - Innovations and Challenges

Lecture 2 - Sustainability Concepts - Innovations and Challenges

Lecture 3 - Basics and Sustainability Concepts and Evolution

Lecture 4 - Engineering for Sustainability

Lecture 5 - Life Cycle Thinking and Circular Economy

Lecture 6 - Mass Concentration Units

Lecture 7 - Partial Pressure Units

Lecture 8 - Other Types of Units

Lecture 9 - Units (Continued...), Qualitative and Quantitative Measurements

Lecture 10 - Quantative Measurements Basics

Lecture 11 - Ecology

Lecture 12 - Energy Flow and Ecological Concepts

Lecture 13 - Population

Lecture 14 - Population, Consumption and Biodiversity

Lecture 15 - Environmental Chemistry

Lecture 16 - Mass Balance and Reactor Systems

Lecture 17 - Mass Balance in Continuous Reactor / Continuous Stirred Tank Reactor (CSTR) and Plug Flow Reactor

Lecture 18 - Plug Flow Reactor and Energy Flow

Lecture 19 - Energy Balance and Earth Overshot Day

Lecture 20 - Mass Transport Processes

Lecture 21 - Oxygen Demand in Environmental Systems

Lecture 22 - BOD Examples, Oxygen Levels in Surface Waters, COD

Lecture 23 - Environmental Health Basics and SDGs

Lecture 24 - Field Applications

Lecture 25 - Nutrient Cycle

Lecture 26 - Environmental Risk

Lecture 27 - Risk Assessment Steps and EIA Introduction

Lecture 28 - Environmental Risk Assessments with Concepts of EIA and LCA

Lecture 29 - Environmental Risk Assessments with Concepts of EIA and LCA (Continued...)

Lecture 30 - Environmental Risk Assessments with Concepts of EIA and LCA (Continued...)

Lecture 31 - Water Quantity

Lecture 32 - Water Availability and Usage

Lecture 33 - Population Forecasting

Lecture 34 - Water Quality

Lecture 35 - Water Quality (Continued...)

Lecture 36 - Plain Sedimentation

Lecture 37 - Coagulation

Lecture 38 - Review of Sedimentation and Rapid Sand Filtration

Lecture 39 - Disinfection and Water Supply

Lecture 40 - Water Treatment Plant Visit

Lecture 41 - Wastewater collection and characterization

Lecture 42 - Sewerage System and Sewage Characteristics

Lecture 43 - BOD Concepts and Preliminary Treatment of Wastewater

Lecture 44 - Wastewater Treatment - I

Lecture 45 - Activated Sludge Process and Sludge Disposal

Lecture 46 - Introduction to Solid Waste Management

Lecture 47 - Introduction to Solid Waste Management (Continued...)

Lecture 48 - Components of Solid Waste Management

Lecture 49 - Collection and Treatment

Lecture 50 - Waste Disposal and Summary

Lecture 51 - Basics of Air Pollution Issues - Global and Local

Lecture 52 - Air Pollutants and Air Pollution Index

Lecture 53 - Global Warming and Climate Change

Lecture 54 - Air Pollution Models

Lecture 55 - SDGs, Noise and Soil Pollution

Lecture 56 - Present Issues and Few Case Studies

Lecture 57 - Case Study - Solid Waste Management

Lecture 58 - Case Study - Industrial Pollution and Disasters

Lecture 59 - Case Study - Global Food Waste Initiatives

Lecture 60 - Case Study - Global Food Waste and Resource Recovery

NPTEL : NOC:Biophotonics (Multi-Disciplinary)

Co-ordinators : Prof. Basudev Lahiri

Lecture 1 - Introduction to Biophotonics - Part I

Lecture 2 - Introduction to Biophotonics - Part II

Lecture 3 - Introduction to Biophotonics - Part III

Lecture 4 - Nature of Light - Part I (As Wave)

Lecture 5 - Nature of Light - Part II (As Particle)

Lecture 6 - Fact of Matter - Part I

Lecture 7 - Fact of Matter - Part II

Lecture 8 - Basic of Light-Matter Interaction

Lecture 9 - Molecular Materials

Lecture 10 - Introduction to Fluorescence

Lecture 11 - The Cell

Lecture 12 - The Central Dogma

Lecture 13 - Genetic Code

Lecture 14 - Building Blocks

Lecture 15 - Remaining Topics

Lecture 16 - Light-Matter Interactions in Molecules (Basic of Spectroscopy)

Lecture 17 - Light-Matter Interactions in Molecules (Basic of Spectroscopy) (Continued...)

Lecture 18 - Interaction of Light with Cells

Lecture 19 - Interaction of Light with Tissues

Lecture 20 - Photoprocesses in Biopolymers

Lecture 21 - Laser Principles and Operation

Lecture 22 - Types of Lasers

Lecture 23 - Nonlinear Optical Processes

Lecture 24 - In Vivo Photoexcitation

Lecture 25 - Examples and Applications

Lecture 26 - Introduction

Lecture 27 - Microscopy Techniques

Lecture 28 - Near Field Microscopy and Optical Coherence Tomography

Lecture 29 - Fluorophores and Fluorescence Microscopy Techniques

Lecture 30 - The Future: AFM-IR

Lecture 31 - Biosensing Background

Lecture 32 - Optical Fiber Sensors

Lecture 33 - Metamaterials

Lecture 34 - Metamaterials as Biosensors

Lecture 35 - Biosensing with Optical Nano-antennas

Lecture 36 - Introduction to Photodynamic Therapy (PDT)

Lecture 37 - Application of Photodynamic Therapy (PDT)

Lecture 38 - Light Irradiation for Photodynamic Therapy (PDT)

Lecture 39 - Real Life Examples of Photodynamic Therapy (PDT)

Lecture 40 - Future of PDT and Photothermal Therapy (PTT)

Lecture 41 - Laser Based Tissue Engineering

Lecture 42 - Laser Tissue Contouring: Dermatological Application

Lecture 43 - Laser Tissue Welding and Tissue Regeneration

Lecture 44 - Laser Tissue Contouring: Ophthalmic Application

Lecture 45 - Laser in Dentistry

Lecture 46 - Tools for Micromanipulation

Lecture 47 - The Optical/Laser Tweezer

Lecture 48 - Design of Optical Tweezers

Lecture 49 - Optical Scissors

Lecture 50 - Selected Examples of Application

Lecture 51 - Introduction to nanotechnology

Lecture 52 - Processes of Nanotechnology

Lecture 53 - Nano-Lithography: The Art of Small

Lecture 54 - Thin Film Deposition

Lecture 55 - Bionanophotonics Applications

Lecture 56 - Introduction to Optogenetics

Lecture 57 - Controlling the Brain with Light

Lecture 58 - Optical Neuroimaging and Tomography

Lecture 59 - Functional Near Infrared Spectroscopy (fNIRS) of the Brain

Lecture 60 - Summary and Revisiting Few topics

NPTEL : NOC:Vacuum Technology and Process Application (Multi-Disciplinary)

Co-ordinators : Prof. V. Vasudeva Rao

Lecture 1 - Introduction to Vacuum, Natural Vacuum

Lecture 2 - History of Vacuum Technology

Lecture 3 - Kinetic Theory of Gases, Physical Parameters of Vacuum and Regions of Vacuum

Lecture 4 - Vacuum Process Applications - I

Lecture 5 - Vacuum Process Applications - II

Lecture 6 - Pumping Speed and Throughput Concepts

Lecture 7 - Rotary Vacuum Pump

Lecture 8 - Diffusion Pump

Lecture 9 - Roots Vacuum Pump

Lecture 10 - Rotary Piston Pump

Lecture 11 - Liquid Ring Pump

Lecture 12 - Steam Jet Ejector

Lecture 13 - Diaphragm Pump

Lecture 14 - Claw Pump

Lecture 15 - Screw Pump

Lecture 16 - Scroll Pump, Sorption Concepts and Pumps

Lecture 17 - Ion Pumping-Sputter Ion Pump

Lecture 18 - Turbomolecular Pump

Lecture 19 - Cryopumps

Lecture 20 - Selection Criteria of Vacuum Pumps

Lecture 21 - Primary vs Secondary Gauges, U Tube/McLeod gauges (Primary)

Lecture 22 - Bourdon/Capacitance Gauges (Mechanical Deflection)

Lecture 23 - Thermo-couple/Pirani gauges (Thermal Conductivity)

Lecture 24 - Spinning Rotor/Ionization/Bayard Alpert Gauges

Lecture 25 - Penning/ Inverted Magnetron gauges, Gauge calibration

Lecture 26 - Vacuum Materials (Metals, Glasses, Ceramics, Greases and Oils)

Lecture 27 - Vacuum Components (Flanges, Couplings, Seals, Valves)

Lecture 28 - Vacuum Chamber Design

Lecture 29 - Fabrication Techniques for Vacuum Systems

Lecture 30 - Testing of Vacuum Systems for Mechanical Failures, Gas Leaks and Outgassing

Lecture 31 - Gas Flow at Low Pressures, Conductance and Effective Pumping Speed Concepts

Lecture 32 - Conductance Calculations in Viscous Flow Region

Lecture 33 - Molecular Flow

Lecture 34 - Transition and Choked Flows

Lecture 35 - Conductance and Pump Down Calculations in Vacuum Systems

Lecture 36 - Design Aspects of Vacuum Systems for Different Applications - Part I

Lecture 37 - Design Aspects of Vacuum Systems for Different Applications - Part II

Lecture 38 - Design of a Vacuum Furnace for Metallurgical Processing

Lecture 39 - Leak Detection in Vacuum Systems

Lecture 40 - Magnetic Deflection Leak Detector and Quadrupole Residual Gas Analyzer

Lecture 41 - Vacuum Processes in Chemical and Pharmaceutical Industries

Lecture 42 - Vacuum for Food Processing

Lecture 43 - Vacuum Technology in the Packaging Industry

Lecture 44 - Vacuum in Wood Industry

Lecture 45 - Vacuum Systems for Medical and Dental Applications

Lecture 46 - Vacuum for Desalination of Sea Water and Treatment of Waste Water

Lecture 47 - Vacuum Technology for Power Sector

Lecture 48 - Vacuum Technology In Oil and Gas Industries

Lecture 49 - Vacuum Technology in LNG industry

Lecture 50 - Vacuum Technology for Cryogenic Applications

Lecture 51 - Vacuum Technology in High Speed Transportation (Hyperloop and Maglev)

Lecture 52 - Vacuum technology for Metallurgical applications

Lecture 53 - Vacuum Technology for Analytical Instruments

Lecture 54 - Vacuum based coating units for thin film deposition

Lecture 55 - Vacuum for solar energy (Thermal and PV)

Lecture 56 - Vacuum Technology for semiconductor chip manufacturing

Lecture 57 - Vacuum Technology for Display Systems

Lecture 58 - Vacuum Technology for Nuclear Applications - Part I

Lecture 59 - Vacuum Technology for Nuclear Applications - Part II

Lecture 60 - Vacuum technology for Space Applications

NPTEL : NOC:Basics of Health Promotion and Education Intervention (Multi-Disciplinary)

Co-ordinators : Prof. Sweety Suman Jha, Prof.Chandrashekhar Taklikar, Prof. Madumita Dobe, Prof. Arista Lahiri

Lecture 1 - Brief history of public health

Lecture 2 - Scope and Evolution of Health Promotion and Education

Lecture 3 - Ottawa Charter

Lecture 4 - Principles of health promotion

Lecture 5 - Settings and audiences for health promotion

Lecture 6 - Concepts of Health Behavior

Lecture 7 - Health Risk Behavior Vs Health Promotion Behavior

Lecture 8 - Concepts of Health Communication - Part I

Lecture 9 - Concepts of Health Communication - Part II

Lecture 10 - Health Literacy

Lecture 11 - Information Education and Communication (IEC)

Lecture 12 - Behavior Change Communication (BCC) - Part I

Lecture 13 - Behavior Change Communication (BCC) - Part II

Lecture 14 - Social and Behavior Change Communication (SBCC) - Part I

Lecture 15 - Social and Behavior Change Communication (SBCC) - Part II

Lecture 16 - Need Assessment for Health Promotion

Lecture 17 - Approaches for Health Promotion and Behavior Change

Lecture 18 - Models of Individual Health Behavior

Lecture 19 - Models of Inter-Personal Health Behaviour

Lecture 20 - Community and Group Models of Health Behavior Change

Lecture 21 - Planning HPE Intervention - Part I

Lecture 22 - Planning HPE Intervention - Part II

Lecture 23 - Implementing HPE Intervention - Part I

Lecture 24 - Implementing HPE Intervention - Part II

Lecture 25 - Monitoring HPE Intervention

Lecture 26 - Principles of Designing Messages

Lecture 27 - Processes and Approaches of Designing Messages - Part I

Lecture 28 - Processes and Approaches of Designing Messages - Part II

Lecture 29 - Overview of Pretesting

Lecture 30 - Pretesting of Health Promotion and Education Tools

Lecture 31 - Health Education Methods - Part I

Lecture 32 - Health Education Methods - Part II

Lecture 33 - Health Education Material - Part I

Lecture 34 - Health Education Material - Part II

Lecture 35 - Technology-based approaches to health behavior change

Lecture 36 - Evaluation of Theory-based HPE Interventions - Part I

Lecture 37 - Evaluation of Theory-based HPE Interventions - Part II

Lecture 38 - Analyzing Health Behavior Change Data

Lecture 39 - RE-AIM Framework for Health Promotion Program Evaluation

Lecture 40 - Health Impact Assessment

NPTEL : NOC:Basics of Mental Health and Clinical Psychiatry (Multi-Disciplinary)

Co-ordinators : Prof. Arijita Banerjee, Prof. Sumit Kumar

Lecture 1 - Introduction to Neuroanatomy

Lecture 2 - Cerebellum

Lecture 3 - Basal Ganglia

Lecture 4 - Thalamus and Hypothalamus

Lecture 5 - Cerebral Cortex

Lecture 6 - Synapse and Neurotransmitters - 1

Lecture 7 - Synapse and Neurotransmitters - 2

Lecture 8 - Limbic System

Lecture 9 - Physiology of Emotions

Lecture 10 - Reticular Formation

Lecture 11 - Electrical activity of brain

Lecture 12 - Descriptive Psychopathology

Lecture 13 - Principles of Personality Development

Lecture 14 - Schizophrenia

Lecture 15 - Mood Disorders - 1

Lecture 16 - Mood Disorders - 2

Lecture 17 - Anxiety Disorders - I

Lecture 18 - Anxiety Disorders - II

Lecture 19 - Eating Disorders

Lecture 20 - Physiology of sleep

Lecture 21 - Sleep Disorders

Lecture 22 - Learning and Memory - 1

Lecture 23 - Learning and Memory - 2

Lecture 24 - Neurocognitive Disorders - I

Lecture 25 - Neurocognitive Disorders - II

Lecture 26 - Substance - I

Lecture 27 - Substance - II

Lecture 28 - Physiology of sensations

Lecture 29 - Psychosomatic Illness

Lecture 30 - Emergency Psychiatry

Lecture 31 - Child Psychiatry - I

Lecture 32 - Child Psychiatry - II

Lecture 33 - Psychotherapy - I

Lecture 34 - Psychotherapy - II

Lecture 35 - Psychological Tests

Lecture 36 - Anti-psychotic drugs

Lecture 37 - Antidepressants

Lecture 38 - Mood Stabilizer

Lecture 39 - Anti-anxiety drugs

Lecture 40 - Forensic Psychiatry

NPTEL : NOC:Introduction to Reliability Engineering (Multi-Disciplinary)

Co-ordinators : Prof. Neeraj Kumar Goyal

Lecture 1 - Introduction to Reliability Engineering

Lecture 2 - Introduction to Reliability Engineering

Lecture 3 - Introduction to Reliability Engineering

Lecture 4 - Probability Basics

Lecture 5 - Probability Basics (Continued...)

Lecture 6 - Constant Failure Rate Model - I

Lecture 7 - Constant Failure Rate Model - II

Lecture 8 - Constant Failure Rate Model - III

Lecture 9 - Two Parameter Exponential Distribution

Lecture 10 - Weibull Distribution (2 Parmeter)

Lecture 11 - Burn-in Screening for Weibull

Lecture 12 - Weibull Distribution

Lecture 13 - Normal Distribution

Lecture 14 - Lognormal Distribution

Lecture 15 - System Reliability Modelling

Lecture 16 - System Reliability Modelling (Continued...)

Lecture 17 - System Reliability Modelling (Continued...)

Lecture 18 - System Reliability Modelling (Continued...)

Lecture 19 - System Reliability Modelling (Continued...)

Lecture 20 - System Reliability Modelling (Continued...)

Lecture 21 - Markov Analysis

Lecture 22 - Markov Analysis (Continued...)

Lecture 23 - Markov Analysis (Continued...)

Lecture 24 - Markov Analysis (Continued...)

Lecture 25 - Markov Analysis (Continued...)

Lecture 26 - Failure Data Analysis: Non-Parametric Approach

Lecture 27 - Failure Data Analysis: Non-Parametric Approach (Continued...)

Lecture 28 - Failure Data Analysis: Non-Parametric Approach (Continued...)

Lecture 29 - Failure Data Analysis: Non-Parametric Approach (Continued...)

Lecture 30 - Failure Data Analysis (Parametric)

Lecture 31 - Failure data analysis (Parametric) (Continued...)

Lecture 32 - Failure data analysis (Parametric) (Continued...)

Lecture 33 - Goodness of fit

Lecture 34 - Goodness of Fit (GoF) Tests

Lecture 35 - Goodness of Fit (GoF) Tests (Continued...)

Lecture 36 - Maintainability and Availability

Lecture 37 - Maintainability and Availability (Continued...)

Lecture 38 - Maintainability and Availability (Continued...)

Lecture 39 - Maintainability and Availability (Continued...)

Lecture 40 - Summary of the course Introduction to Reliability Engineering

NPTEL : NOC:Nanobio Technology Enabled Point-of-Care Devices (Multi-Disciplinary)

Co-ordinators : Prof. Gorachand Dutta

Lecture 1 - Introduction

Lecture 2 - Biosensors and its Application

Lecture 3 - Translational Research and Nano Biosensing

Lecture 4 - Nanomaterials for Healthcare Biosensing

Lecture 5 - Signal Amplification for Ultrasensitive Biosensors

Lecture 6 - Signal Amplification for Ultrasensitive Biosensors (Continued...)

Lecture 7 - Signal Amplification for Ultrasensitive Biosensors (Continued...)

Lecture 8 - Signal Amplification for Ultrasensitive Biosensors (Continued...)

Lecture 9 - Different Measurement Techniques for Electrochemical Biosensors

Lecture 10 - Limit of Detection and Wash-Free Detection for Biosensors

Lecture 11 - Wash-Free Detection for Biosensors (Continued...)

Lecture 12 - Label-Free Detection for Biosensors

Lecture 13 - Label-free detection and Multiplex Biosensors

Lecture 14 - Multiplex Biosensors (Continued...)

Lecture 15 - Strategy for Electrochemical Detection and Tuning of Electrocatalytic Activities

Lecture 16 - Enhanced electrocatalytic activity for biosensors

Lecture 17 - Strategy for Electrochemical Detection and Tuning of Electrocatalytic Activities

Lecture 18 - Strategy for Electrochemical Detection and Tuning of Electrocatalytic Activities

Lecture 19 - Strategy for Electrochemical Detection and Tuning of Electrocatalytic Activities

Lecture 20 - Strategy for Electrochemical Detection and Tuning of Electrocatalytic Activities

Lecture 21 - Strategy for Electrochemical Detection and Tuning of Electrocatalytic Activities

Lecture 22 - Strategy for Electrochemical Detection and Tuning of Electrocatalytic Activities

Lecture 23 - Effect of pretreatment on PCB and biosensor developement

Lecture 24 - Impact of surface Roughness of PCB and PCB for Glucose sensors

Lecture 25 - Tutorial on Biosensors Fabrication

Lecture 26 - Tutorial on Biosensors Fabrication (Continued...)

Lecture 27 - Tutorial on Biosensors Fabrication (Continued...)

Lecture 28 - Tutorial on Biosensors Fabrication (Continued...)

Lecture 29 - Tutorial on Biosensors Fabrication (Continued...)

Lecture 30 - Tutorial on Biosensors Fabrication (Continued...)

Lecture 31 - Self-Powered Biosensors

Lecture 32 - Biosensors for Safety and Security

Lecture 33 - Research Proposal and Ethical Clearance

Lecture 34 - Special Chemestry for Biosensing

Lecture 35 - Tutorial - 2

Lecture 36 - Tutorial - 3

Lecture 37 - Tutorial - 4

Lecture 38 - Lab Demonstration - 1

Lecture 39 - Lab Demonstration - 2

Lecture 40 - Lab Demonstration - 3

NPTEL : NOC:Adolescent Health and Well-Being : A Holistic Approach (Multi-Disciplinary)

Co-ordinators : Dr. Sumana Samanta, Dr. Parmeshwar Satpathy

Lecture 1 - Adolescent Health Statistics

Lecture 2 - Introduction to Nutrition and Dietetics

Lecture 3 - Role of Macronutrients

Lecture 4 - Role of Micronutrients

Lecture 5 - Basics of Adolescent Mental Health

Lecture 6 - Physiological and Psychological changes during Adolescence

Lecture 7 - Special Nutritional Requirements in Adolescents

Lecture 8 - Malnutrition in Adolescents and their effects in Adult life

Lecture 9 - Adolescent Immunization

Lecture 10 - High risk behaviour in Adolescents

Lecture 11 - Nutrition Care Process

Lecture 12 - Dietary Counseling and Nutrition Planning

Lecture 13 - Common Micronutrient Deficiency in Adolescents

Lecture 14 - Eating Disorders in Adolescents

Lecture 15 - National Initiatives related to Adolescents

Lecture 16 - Behavior Modification for Weight Management

Lecture 17 - Adolescents And Physical Activity

Lecture 18 - Combating Special Situations

Lecture 19 - Legislations for Adolescents

Lecture 20 - Innovations for Holistic Well-being of Adolescents

NPTEL : NOC:Research Methods in Health Promotion (Multi-Disciplinary)

Co-ordinators : Dr. Arista Lahiri, Dr. Sweety Suman Jha, Prof. Madhumita Dobe

Lecture 1 - Basics of Health Promotion

Lecture 2 - Basic Principles of Health Promotion

Lecture 3 - The Health Promotion Research Process

Lecture 4 - Process of Health Promotion Research: Integrity and Rigor

Lecture 5 - Ethics in Health Promotion Research

Lecture 6 - Health Behavior and Health Behavior Change

Lecture 7 - Theory, Research and Behavior Change Techniques

Lecture 8 - Intervention Mapping

Lecture 9 - Ecological Models of Health Behavior

Lecture 10 - Social Science Techniques

Lecture 11 - Precede-Proceed Model

Lecture 12 - Models of Individual Health Behavior - I

Lecture 13 - Models of Individual Health Behavior - II

Lecture 14 - Models of Interpersonal Health Behavior

Lecture 15 - Community and Group Models of Health Behavior Change

Lecture 16 - Research design and techniques

Lecture 17 - Observational research designs

Lecture 18 - Experimental Research Designs

Lecture 19 - Experimental Research Designs: Issues and Challenges

Lecture 20 - Measurements in Health promotion

Lecture 21 - Qualitative methods in Health Promotion - Part I

Lecture 22 - Qualitative Methods in Health Promotion - Part II

Lecture 23 - Qualitative Methods in Health Promotion - Part III

Lecture 24 - Qualitative Methods in Health Promotion - Part IV

Lecture 25 - Qualitative Methods in Health Promotion - Part V

Lecture 26 - Introduction to Mixed Methods Research

Lecture 27 - The Convergent Design

Lecture 28 - The Explanatory Sequential Design

Lecture 29 - The Exploratory Sequential Design (Continued...)

Lecture 30 - The Embedded Design

Lecture 31 - Different study tools and their application in health promotion research

Lecture 32 - Formulating an appropriate study tool (Quantitative data collection tools)

Lecture 33 - Validity and reliability of study tools in quantitative research - Part I

Lecture 34 - Validity and reliability of study tools in quantitative research - Part II

Lecture 35 - Formulating an appropriate study tool(Qualitative data collection tools)

Lecture 36 - Designing messages - Part I

Lecture 37 - Designing messages - Part II

Lecture 38 - Materials and Methods of Intervention Delivery - Part I

Lecture 39 - Materials and Methods of Intervention Delivery - Part II

Lecture 40 - Pretesting of an intervention tool

Lecture 41 - BCC and SBCC - Part I

Lecture 42 - BCC and SBCC - Part II

Lecture 43 - BCC and SBCC - Part III

Lecture 44 - BCC and SBCC - Part IV

Lecture 45 - BCC and SBCC - Part V

Lecture 46 - Community-Based Participatory Research in context to Health Promotion - Part I

Lecture 47 - Community-Based Participatory Research in context to Health Promotion - Part II

Lecture 48 - Community-Based Participatory Research in context to Health Promotion - Part III

Lecture 49 - Community-Based Participatory Research in context to Health Promotion - Part IV

Lecture 50 - Community-Based Participatory Research in context to Health Promotion - Part V

Lecture 51 - Quantitative analytical methods - Part I

Lecture 52 - Quantitative analytical methods - Part II

Lecture 53 - Quantitative analytical methods - Part III

Lecture 54 - Analysis of Qualitative data

Lecture 55 - Analyzing Mixed Methods data

Lecture 56 - Developing a research proposal in health promotion

Lecture 57 - Report writing in health Promotion: An Overview

Lecture 58 - Report writing: quantitative research in health promotion - Part I

Lecture 59 - Report writing: quantitative research in health promotion - Part II

Lecture 60 - Report Writing: Qualitative and Mixed Methods research

NPTEL : NOC:Urban Ecological Heritagescapes through Interactive Governance: Theories and Applications (Multi-Disciplinary)

Co-ordinators : Prof. Jenia Mukherjee

Lecture 1 - Introduction

Lecture 2 - Urban Heritage - Global Conventions and Declarations

Lecture 3 - Historical Urban Landscape (HUL) - Approach, Toolkit, and Actions

Lecture 4 - Urban Heritage - The Indian Context

Lecture 5 - SDG(s) 11(.4) - Transdisciplinary Possibilities, Pathways, and Actions

Lecture 6 - Historicizing lakes of Bangalore - social-ecological perspectives

Lecture 7 - Urban environmentalisms - lake-based and rights-based

Lecture 8 - Example 1: The Jakkur Lake

Lecture 9 - Example 2: The Puttenahalli Lake

Lecture 10 - Example 3: The Kaikondrahalli Lake

Lecture 11 - Kolkata's heritage - Applying the urban ecological heritage lens

Lecture 12 - Kolkata and EKW - conveying the co-evolutionary narrative

Lecture 13 - Living Systems infrastructure of Kolkata

Lecture 14 - Case study 1: The Nalban and Goltala Fisheries

Lecture 15 - Case study 2: Baro Chaynavi Cooperative

Lecture 16 - Case study 3: Jhagrashisha

Lecture 17 - EKW as heritage - Lessons from a Practical Empirical Implementation Project - I

Lecture 18 - EKW as heritage - Lessons from a Practical Empirical Implementation Project - I

Lecture 19 - Conclusions

NPTEL : NOC:Experimental Robotics (Multi-Disciplinary)

Co-ordinators : Prof. Dilip Kumar Pratihar

Lecture 1 - Introduction

Lecture 2 - Experiment 1: Teaching of Serial Manipulator

Lecture 3 - Experimentation I

Lecture 4 - Experiment 1: Teaching of Serial Manipulator (Continued...)

Lecture 5 - Experiment 2: Control of Tracked Mobile Manipulator

Lecture 6 - Experimentation II

Lecture 7 - Experiment 2: Control of Tracked Mobile Manipulator (Continued...)

Lecture 8 - Experiment 3: Path and Gait Planning of Six-legged Robot

Lecture 9 - Experimentation III

Lecture 10 - Experiment 3: Path and Gait Planning of Six-legged Robot (Continued...)

Lecture 11 - Experiment 4: Navigation of Drone

Lecture 12 - Experimentation IV

Lecture 13 - Experimentation IV (Continued...)

Lecture 14 - Experiment 5: Path and Gait Planning of 25 dof NAO Humanoid Robot

Lecture 15 - Experimentation V

Lecture 16 - Experiment 5: Path and Gait Planning of 25 dof NAO Humanoid Robot (Continued...)

Lecture 17 - Current Trends in Robotics Research

Lecture 18 - Summary of the Course

NPTEL : NOC:Medical Law (Multi-Disciplinary)

Co-ordinators : Prof. Narendran Thiruthy, Prof. Chaitanya Mittal

Lecture 1 - Interface between Medical Profession and Law

Lecture 2 - Role of Medical practitioners in Justice Administration

Lecture 3 - Dos and Don'ts of Doctors

Lecture 4 - Dos and Don'ts for Legal Practitioners

Lecture 5 - Knowledge exchange between Medical and Legal Practitioners

Lecture 6 - Consent in Law

Lecture 7 - Types of Consent in Medical Field

Lecture 8 - Ethics in Medical Profession

Lecture 9 - Importance of Documentation in Medical practice

Lecture 10 - Legal Implications of Improper Documentation

Lecture 11 - Legal Responsibilities of Medical Practitioners

Lecture 12 - Medical Negligence and Legal Implications

Lecture 13 - Legal Implications of Medical Malpractice

Lecture 14 - Landmark Judgments on Medical Negligence

Lecture 15 - Testimony of Doctors in Medical Negligence

Lecture 16 - Healthcare Policy and Law

Lecture 17 - Clinical Establishment Law

Lecture 18 - Legal liability of Hospitals/Clinical Establishments

Lecture 19 - Legal responsibility in Diagnostics

Lecture 20 - Penalties for non-compliance

Lecture 21 - Role of IPR in promoting medical innovation and technologies

Lecture 22 - Health Policy formulation and Role of IPR

Lecture 23 - Intellectual Property and Access to Medicine

Lecture 24 - Neglected diseases and Role of IPR

Lecture 25 - Patenting Therapeutic Practices and Techniques

Lecture 26 - Duties of Doctor in Courts

Lecture 27 - Evidence Law and Medical experts

Lecture 28 - Admissibility of Forensic Evidence

Lecture 29 - Various Legal procedures in Medical practice

Lecture 30 - Collection, preservation and dispatch of Forensic Evidence

Lecture 31 - Ethical insight into different aspects of Surrogacy practice

Lecture 32 - Surrogacy Regulation in India

Lecture 33 - Assisted Reproductive Technology Regulation in India

Lecture 34 - Pre-Conception and Pre-Natal Diagnostic

Lecture 35 - Penalties for non-compliance

Lecture 36 - Ethical Issues in Organ Transplantation

Lecture 37 - Law governing organ transplantation

Lecture 38 - Comparative Law on Organ Transplantation

Lecture 39 - Medico-Legal Issues in Clinical Trials

Lecture 40 - Regulatory Law for Clinical Trials in India

NPTEL : NOC:An Overview on Maternal Health Antenatal, Intranatal and Postnatal Care (Multi-Disciplinary)

Co-ordinators : Prof. Barnali Ghosh

Lecture 1 - Overview of Obstetrics

Lecture 2 - Anatomy of Vulva or pudendum

Lecture 3 - Anatomy of Vagina

Lecture 4 - Anatomy of Cervix and Uterus

Lecture 5 - Anatomy of Uterus

Lecture 6 - Anatomy of fallopian tubes and ovary

Lecture 7 - Anatomy of plvic floor and perineum

Lecture 8 - Gametogenesis

Lecture 9 - Fertilisation and Embryogenesis

Lecture 10 - Implantation

Lecture 11 - Placentation (normal and abnormal)

Lecture 12 - Placentation (normal and abnormal) (Continued...)

Lecture 13 - Umbilical cord and Fetal membranes - Part 1

Lecture 14 - Umbilical cord and Fetal membranes - Part 2

Lecture 15 - FETUS (physiology and circulation)

Lecture 16 - Physiological changes in pregnancy - Part 1

Lecture 17 - Physiological changes in pregnancy - Part 2

Lecture 18 - Physiological changes in pregnancy - Part 3

Lecture 19 - Hormones in pregnancy

Lecture 20 - Hormones in pregnancy (Continued...)

Lecture 21 - Diagnosis of pregnancy - 1

Lecture 22 - Diagnosis of Pregnancy - 2

Lecture 23 - Obstetrical Examination

Lecture 24 - Obstetrical Examinationon antenatal mother (Clinical Study)

Lecture 25 - Maternal Pelvis $ Foetal Skill - Part 1

Lecture 26 - Fetal Skull

Lecture 27 - Pre-conceptional counselling and care

Lecture 28 - Nutrition in Pregnancy

Lecture 29 - Antenatal Care - Part 1

Lecture 30 - Antenatal Care - Part 2

Lecture 31 - Antenatal Care - Part 3

Lecture 32 - Antenatal Assessment of Fetal Well-Being - Part 1

Lecture 33 - Antenatal Assessment of Fetal Well-Being - Part 2

Lecture 34 - Antenatal Assessment of Fetal Well-Being - Part 3

Lecture 35 - Prenatal Screening and Diagnosis of aneuploidies

Lecture 36 - Invasive and non-invasive Prenatal Diagnostic Test

Lecture 37 - Invasive and non-invasive Prenatal Diagnostic Test (Continued...)

Lecture 38 - Fetal Imaging and Amniotic Fluid Study

Lecture 39 - Fetal Imaging and Amniotic Fluid Study

Lecture 40 - Teratology, Teratogens and feto-toxic agents - Part 1

Lecture 41 - Teratology, Teratogens and feto-toxic agents - Part 2

Lecture 42 - Normal Labour - Stages and cause of onset

Lecture 43 - Physiology of Labor

Lecture 44 - Events of Normal Labour

Lecture 45 - Mechanism of Normal Labour

Lecture 46 - Mechanism of Normal Labour (Continued...)

Lecture 47 - Clinical course of Labour

Lecture 48 - Monitoring of Normal Labour - Part 1

Lecture 49 - Monitoring of Normal Labour - Part 2

Lecture 50 - Labour Analgesia

Lecture 51 - Labour Analgesia (Continued...)

Lecture 52 - Abnormal Labour

Lecture 53 - Intrapartum Fetal Monitoring - Partogram

Lecture 54 - Intrapartum Fetal Monitoring - Cardiotocography (CTG)

Lecture 55 - Intrapartum Fetal Monitoring - Cardiotocography (CTG) (Continued...)

Lecture 56 - Induction and Augmentation of Labour

Lecture 57 - WHO Labour Guide

Lecture 58 - Episiotomy

Lecture 59 - Instrumental Vaginal Delivery

Lecture 60 - Obstetric anal sphincter injuries OASIS

Lecture 61 - Lower Segment Caesarean Section

Lecture 62 - Normal Puerperal changes

Lecture 63 - Management of Puerperium

Lecture 64 - Post-Natal care and postpartum contraception

Lecture 65 - Maternal Health Indicators and demographic scenario

Lecture 66 - Government health programmes related to Maternal Health

Lecture 67 - Government health programmes related to Maternal Health (Continued...)

Lecture 68 - Comprehensive Abortion Care (MTP Amendment Act 2021)

NPTEL : NOC:Recommender Systems (Multi-Disciplinary)

Co-ordinators : Prof. Mamata Jenamani

Lecture 1 - Recommender system and its business value

Lecture 2 - Types of recommender system - I

Lecture 3 - Types of recommender system - II

Lecture 4 - Data Collection

Lecture 5 - Data Description

Lecture 6 - Data preprocessing

Lecture 7 - Dimensionality Reduction

Lecture 8 - Introduction to machine learning - I

Lecture 9 - Introduction to machine learning - II

Lecture 10 - Introduction to machine learning - III

Lecture 11 - Distance and Similarity

Lecture 12 - Distance and Similarity (Continued...)

Lecture 13 - User-Based Approach

Lecture 14 - Item-Based Approach

Lecture 15 - Additional Topics in Neighbourhood Based Approach

Lecture 16 - Association rule based model

Lecture 17 - UV Decomposition

Lecture 18 - The latent factor model

Lecture 19 - Basic latent factor models

Lecture 20 - Other advanced models

Lecture 21 - Introduction to content based recommender system: Foundations

Lecture 22 - Feature Engineering - I

Lecture 23 - Feature Engineering - II

Lecture 24 - Feature Engineering - III

Lecture 25 - Feature Engineering - IV

Lecture 26 - Decision Trees for content based recommendation

Lecture 27 - NaÃƒÂ¯ve Bayes classifier for content based recommendation

Lecture 28 - kNN Classifier for Recommender System

Lecture 29 - Rule based classification

Lecture 30 - Regression methods and conclusions

Lecture 31 - Introduction to evaluation ofrecommender system

Lecture 32 - Resampling methods

Lecture 33 - Evaluation metrics for accuracy

Lecture 34 - Drawing reliable conclusions - I

Lecture 35 - Drawing reliable conclusions - II

Lecture 36 - Hybrid recommender systems

Lecture 37 - Knowledge based recommender systems

Lecture 38 - Context-Sensitive recommender systems

Lecture 39 - Structural Recommendations in Networks

Lecture 40 - Trust aware recommender systems

NPTEL : NOC:Comprehensive Molecular Diagnostics and Advanced Gene Expression Analysis (Multi-Disciplinary)

Co-ordinators : Prof. Arindam Ghosh, Prof. Aritri Bir

Lecture 1 - Foundation of Molecular Biology

Lecture 2 - DNA Replication and Repair Mechanism

Lecture 3 - Transcription (RNA Synthesis)

Lecture 4 - Protein Synthesis (Translation)

Lecture 5 - Nucleic Acid Isolation and Detection Methods

Lecture 6 - PCR (Polymerase Chain Reaction) Fundamentals

Lecture 7 - Realtime PCR - Part 1

Lecture 8 - Realtime PCR - Part 2

Lecture 9 - Variations of the PCR - Part 1

Lecture 10 - Variations of the PCR - Part 2

Lecture 11 - DNA Cloning and Recombinant DNA technology - I

Lecture 12 - DNA Cloning and Recombinant DNA technology - II

Lecture 13 - DNA Cloning and Recombinant DNA technology - III

Lecture 14 - Genome Editing Technologies - I

Lecture 15 - Genome Editing Technologies - II

Lecture 16 - DNA Microarray

Lecture 17 - FISH (Fluorescence in situ Hybridization)

Lecture 18 - Methods to study DNA-protein interaction - I

Lecture 19 - Methods to study DNA-protein interaction - II

Lecture 20 - Epigenetics and DNA methylation analysis

Lecture 21 - DNA Sequencing - Part 1 - Maxam Gilbert Sequencing

Lecture 22 - DNA Sequencing - Part 2 - Sanger Sequencing

Lecture 23 - Next Generation Sequencing - Part 1

Lecture 24 - Next Generation Sequencing - Part 2

Lecture 25 - Next Generation Sequencing - Part 3

Lecture 26 - Overview, Importance, Methods in Proteomics

Lecture 27 - Proteomic Techniques - High performance liquid chromatography (HPLC)

Lecture 28 - Proteomic Techniques - Mass Spectrometry

Lecture 29 - Proteomic Techniques - Differential in-gel electrophoresis

Lecture 30 - Proteomic Techniques - Protein Microarray

Lecture 31 - Label-based Protein Quantification Technologies - Part 1

Lecture 32 - Label-based Protein Quantification Technologies - Part 2

Lecture 33 - Label free methods of protein quantification

Lecture 34 - Next Generation Proteomics

Lecture 35 - Proteomic Data Analysis and Bioinformatic Tools

Lecture 36 - Syndromic Panels and Multiplex Assay : Molecular identification of Microorganism

Lecture 37 - Molecular Diagnostics in Antimicrobial Resistance Testing

Lecture 38 - RNA Sequencing: Role in Infectious diseases - I

Lecture 39 - RNA Sequencing: Role in Infectious diseases - II

Lecture 40 - Point of Care (POC) diagnostics in Infectious diseases

Lecture 41 - Molecular genetics in tumorogenesis

Lecture 42 - Liquid biopsies in cancer detection

Lecture 43 - Digital PCR in Cancer detection

Lecture 44 - Mutation Detection Methods

Lecture 45 - Isothermal Nucleic Acid Amplification

Lecture 46 - Genetic Testing and Inherited Disorders - Part 1

Lecture 47 - Genetic Testing and Inherited Disorders - Part 2

Lecture 48 - Prenatal diagnostics and NIPT

Lecture 49 - Reproductive genetics and genetic counselling

Lecture 50 - Genetic counselling and patient education

Lecture 51 - Serial Analysis of Gene Expression

Lecture 52 - Metabolomics in Molecular Diagnostics

Lecture 53 - Immunoassay and Luminex Multiplex Assay

Lecture 54 - Molecular diagnostics in Metabolic, Cardiovascular and Gastrointestinal disorders

Lecture 55 - Molecular diagnostics in Endocrine, Neurodegenerative and Transplantation disorders

Lecture 56 - Pharmacogenomics and Personalized Medicine

Lecture 57 - Quality control (QC) in molecular diagnostics

Lecture 58 - Ethical concerns in molecular diagnostics

Lecture 59 - Artificial Intelligence and Machine learning in Genomics

Lecture 60 - Integration of Multiomics Data in Molecular Diagnostics

NPTEL : NOC:Thin Film Technology (Multi-Disciplinary)

Co-ordinators : Prof. Samit K Ray

Lecture 1 - General Introduction

Lecture 2 - Thin Film Materials and Components

Lecture 3 - Semiconductor Films and Heterostructures

Lecture 4 - Chemical Methods

Lecture 5 - Physical Vapor Deposition (PVD) : Thermal Evaporation

Lecture 6 - Thermal Evaporation

Lecture 7 - Sources of Thermal Evaporation

Lecture 8 - Evaporation of Elements and Compounds

Lecture 9 - Compound Evaporation and Thickness Uniformity

Lecture 10 - Film Thickness Monitoring and Control

Lecture 11 - Pulsed Laser Deposition

Lecture 12 - Sputtering Process and Mechanism

Lecture 13 - Plasma Discharge and DC Sputtering

Lecture 14 - RF Sputtering Process

Lecture 15 - Magnetron Sputtering

Lecture 16 - Sputtering of Binary Alloys and Compounds

Lecture 17 - Ion Beam and Hybrid Deposition

Lecture 18 - Introduction to CVD Process

Lecture 19 - Thermal CVD Process

Lecture 20 - Gas Transport and Growth Kinetics

Lecture 21 - CVD Processes and Systems

Lecture 22 - Plasma Enhanced CVD (PECVD)

Lecture 23 - Liquid Phase Epitaxy

Lecture 24 - Vapor Phase Epitaxy - Compound Semiconductors

Lecture 25 - Metal-Organic CVD (MOCVD)

Lecture 26 - Introduction and Film Purity

Lecture 27 - MBE System and Growth Mechanism

Lecture 28 - Effusion Source and Growth Rate

Lecture 29 - Insitu Growth Monitoring - RHEED Oscillation

Lecture 30 - Atomic Layer Deposition / Atomic Layer Epitaxy

Lecture 31 - Thin Film Growth Modes

Lecture 32 - Homogeneous Nucleation

Lecture 33 - Heterogenous Nucleation

Lecture 34 - Stranski-Krastanov (2D-3D) Growth Mode

Lecture 35 - SiGe Strained Layer Epitaxy (2D) and Ge Islands (3D)

Lecture 36 - Thickness Measurement

Lecture 37 - Thickness Measurement - Interference Method

Lecture 38 - Thickness and Optical Constants - Ellipsometry

Lecture 39 - Mechanical Properties - Film Porosity and Adhesion

Lecture 40 - Mechanical Properties â€“ Residual Stress

Lecture 41 - Electron Beam Techniques - SEM

Lecture 42 - Scanning Electron Microscopy

Lecture 43 - Microprobe and Transmission Electron Microscopy

Lecture 44 - Transmission Electron Microscopy

Lecture 45 - Scanning Probe Microscopy

Lecture 46 - X-ray Photoelectron Spectroscopy

Lecture 47 - Auger Electron Spectroscopy

Lecture 48 - Secondary Ion Mass Spectrometry (SIMS)

Lecture 49 - Different SIMS Techniques and Depth Profile Analysis

Lecture 50 - Rutherford Backscattering Spectrometry (RBS)

Lecture 51 - Basic Device Fabrication Techniques

Lecture 52 - Metal-Oxide-Semiconductor (MOS) Capacitor

Lecture 53 - n-MOSFET and CMOS FET Devices

Lecture 54 - Scaled Si MOSFET Devices

Lecture 55 - Heterostructure FET and Bipolar Transistors

Lecture 56 - Optoelectronic Materials and Devices

Lecture 57 - Light Emitting Devices

Lecture 58 - Photodetector Devices

Lecture 59 - Photovoltaic Devices

Lecture 60 - Nanotechnology and Photonic Devices

NPTEL : NOC:An Integrated Approach to Common Childhood Diseases and Developmental Disorders in India (Multi-Disciplinary)

Co-ordinators : Prof. Nabarun Karmakar, Prof. Soumi Kundu, Prof. Parama Banerjee

Lecture 1 - Neonatal screening in India - Clinical Aspect

Lecture 2 - Neonatal Screening - Biochemical Aspect - Part I

Lecture 3 - Neonatal Screening - Biochemical Aspect - Part II

Lecture 4 - Neonatal Screening - Biochemical Aspect - Part III

Lecture 5 - India Newborn Action Plan (INAP)

Lecture 6 - Congenital Adrenal Hyperplasia - Biochemical Aspect

Lecture 7 - Congenital Adrenal Hyperplasia

Lecture 8 - Congenital and Acquired hypothyroidism

Lecture 9 - National Program for Hemoglobinopathies

Lecture 10 - Common Genetic Disorders in children

Lecture 11 - Congenital Hearing Disorders

Lecture 12 - Congenital Ophthalmological Disorders

Lecture 13 - Congenital Orthopedic Disorders

Lecture 14 - Congenital Structural Disorders

Lecture 15 - Malnutrition in Indian Children

Lecture 16 - Clinical features and management of Protein Energy Malnutrition

Lecture 17 - Medico-Social aspects and Prevention of Malnutrition in India

Lecture 18 - Integrated Child Developmental Services (ICDS)

Lecture 19 - Community Nutrition Programs

Lecture 20 - Vitamin A

Lecture 21 - Vitamin A disorders in Children

Lecture 22 - Vitamin B 1, 2, 3

Lecture 23 - Vitamin B 6, 9

Lecture 24 - Vitamin B 9, 12

Lecture 25 - Vitamin C

Lecture 26 - Vitamin B and C disorders in Children

Lecture 27 - Vitamin D

Lecture 28 - Vitamin D disorders in Children

Lecture 29 - Iodine

Lecture 30 - National program for Vitamin A and Iodine deficiency disorders

Lecture 31 - Iron

Lecture 32 - Iron (Anaemia)

Lecture 33 - Anemia in Children - Part I

Lecture 34 - Anemia in Children - Part II

Lecture 35 - Anemia Mukt Bharat

Lecture 36 - Universal Immunization Program and Mission Indradhanush

Lecture 37 - Vaccine preventable disease - Part I

Lecture 38 - Vaccine preventable disease - Part II

Lecture 39 - Vaccine preventable disease - Part III

Lecture 40 - IAP immunization schedule and VPD surveillance

Lecture 41 - NVBDCP - Part I

Lecture 42 - NVBDCP - Part II

Lecture 43 - NVBDCP - Part III (Program aspect)

Lecture 44 - National program for TB and Leprosy

Lecture 45 - National program for AIDS and Hepatitis

Lecture 46 - Pneumonia

Lecture 47 - Diarrhea

Lecture 48 - IMNCI - Part I

Lecture 49 - IMNCI - Part II

Lecture 50 - RMNCH+A

Lecture 51 - Common Congenital Heart Diseases

Lecture 52 - Rheumatic Heart Disease

Lecture 53 - Childhood Asthma

Lecture 54 - Seizures in Childhood

Lecture 55 - Nephrotic syndrome

Lecture 56 - Developmental Delay and Cerebral Palsy

Lecture 57 - Common behavioral and psychiatric Disorders in Childhood - Part I

Lecture 58 - Common behavioral and psychiatric Disorders in Childhood - Part II

Lecture 59 - Learning and Developmental Disorders in Children

Lecture 60 - School Health Programme and Rashtriya Bal Swasthya Karyakram (RBSK)

NPTEL : NOC:Sustainable Mining and Geoinformation (Multi-Disciplinary)

Co-ordinators : Prof. B. K. Prusty, Prof. M. D. Behera

Lecture 1 - Fundamental of geoinformation

Lecture 2 - Optical remote sensing

Lecture 3 - LiDAR Remote Sensing

Lecture 4 - Microwave remote sensing

Lecture 5 - Thermal/Column Concentration

Lecture 6 - Geographic Information System (GIS)

Lecture 7 - Global Navigation Satellite System (GNSS)

Lecture 8 - 3-Dimentional Terrain Modeling

Lecture 9 - Cloud Computing

Lecture 10 - Internet of Things (IoT)

Lecture 11 - Exploration Mapping

Lecture 12 - Environmental Management

Lecture 13 - Restoration Monitoring

Lecture 14 - Contamination Mapping and Geo-Assessments

Lecture 15 - Volume Measurement and Geospatial Techniques

Lecture 16 - Subsidence Detection

Lecture 17 - Topographic and Slope Analysis

Lecture 18 - Disaster Management

Lecture 19 - Heat Detection and Monitoring

Lecture 20 - Gas and Particulate Matter Monitoring

Lecture 21 - Minerals, Mining and Society - I

Lecture 22 - Minerals, Mining and Society - II

Lecture 23 - Mining and Its Environmental Impacts - I

Lecture 24 - Mining and Its Environmental Impacts - II

Lecture 25 - Environmental Impact Assessment for Mining Projects - I

Lecture 26 - Environmental Impact Assessment for Mining Projects - II

Lecture 27 - Sustainable Development for Mining Industry - I

Lecture 28 - Sustainable Development for Mining Industry - II

Lecture 29 - SDF for Mining Industry - I

Lecture 30 - SDF for Mining Industry - II

Lecture 31 - Fundamental: Geoinformation and SDGs in Mining

Lecture 32 - SDG 1 and 2 [No Poverty and Zero Hunger]

Lecture 33 - SDG 3, 4 and 5

Lecture 34 - SDG 6 [Clean Water and Sanitation]

Lecture 35 - SDG 7, 8 and 9

Lecture 36 - SDG 11

Lecture 37 - SDG 12, 13

Lecture 38 - SDG 14, 15, 17

Lecture 39 - Life Cycle and Associated Environmental Impacts

Lecture 40 - Sustainability Performance Monitoring

Lecture 41 - Land Acquisition and Rehabilitation and Resettlement Act - I

Lecture 42 - Land Acquisition and Rehabilitation and Resettlement Act - II

Lecture 43 - Land Acquisition, R and R Act - III

Lecture 44 - Mine Closure Plan - I

Lecture 45 - Mine Closure Plan - II

Lecture 46 - Challenges Towards SD In Mining Industry

Lecture 47 - Sustainable Development in Mining Legislation - NMP 2019

Lecture 48 - Sustainable Development in Mining Legislation - II

Lecture 49 - Life Cycle Analysis

Lecture 50 - Life Cycle Analysis for Mining Industry

Lecture 51 - Circular Economy for Mining Industry - I

Lecture 52 - Circular Economy for Mining Industry - II

Lecture 53 - Circular Economy for Mining Industry - III

Lecture 54 - Carbon footprints of mining industry

Lecture 55 - Net Zero and Decarbonisation of Mining Industry

Lecture 56 - Sustainability Reporting for Mining Industry - I

Lecture 57 - Sustainability Reporting for Mining Industry - II

Lecture 58 - Sustainability Assessment for Indian Mines

Lecture 59 - CSR for Sustainable Development

Lecture 60 - Sustainable Development in Mining Industry - Case Study

NPTEL : NOC:Neuroscience of Human Movement (Multi-Disciplinary)

Co-ordinators : Prof. Varadhan

Lecture 0 - Neuroscience of Human Movement

Lecture 1 - Membrane Physiology - Part 1

Lecture 2 - Membrane Physiology - Part 2

Lecture 3 - Nernst Equation

Lecture 4 - Goldman Equation

Lecture 5 - Action Potential - Part 1

Lecture 6 - Action Potential - Part 2

Lecture 7 - Action Potential - Part 3

Lecture 8 - Action Potential - Part 4

Lecture 9 - Action Potential - Part 5

Lecture 10 - Review of Action Potential and Neurotransmitters

Lecture 11 - Neuromuscular Junction

Lecture 12 - Disorders of Neuromuscular Junction

Lecture 13 - Skeletal Muscles - Part 1

Lecture 14 - Skeletal Muscles - Part 2

Lecture 15 - Skeletal Muscles - Part 3

Lecture 16 - Skeletal Muscles - Part 4

Lecture 17 - Muscle force production

Lecture 18 - Motor Units - Part 1

Lecture 19 - Motor Units - Part 2

Lecture 20 - Motor Units - PIC and EMG

Lecture 21 - Receptors - Part 1

Lecture 22 - Receptors - Part 2

Lecture 23 - Spine and Spinal Cord

Lecture 24 - Excitation and Inhibition within Spinal Cord - Part 1

Lecture 25 - Excitation and Inhibition within Spinal Cord - Part 2

Lecture 26 - Monosynaptic Reflexes - Part 1

Lecture 27 - Monosynaptic Reflexes - Part 2

Lecture 28 - Monosynaptic Reflexes - Part 3

Lecture 29 - Oligosynaptic and Polysynaptic Reflexes - Part 1

Lecture 30 - Oligosynaptic and Polysynaptic Reflexes - Part 2

Lecture 31 - Pre-Programmed Reactions - Part 1

Lecture 32 - Pre-Programmed Reactions - Part 2

Lecture 33 - Spinal Cord Injuries and Central Pattern Generators

Lecture 34 - Animal Preparations for Neuroscience Experiments

Lecture 35 - Overview of motor control system

Lecture 36 - Terminology : Directional Terms and Planes (Primary Motor Cortex - Part - 1)

Lecture 37 - Primary Motor Cortex - Part 2

Lecture 38 - Primary Motor Cortex - Part 3

Lecture 39 - Primary Motor Cortex - Part 4

Lecture 40 - Primary Motor Cortex - Part 5

Lecture 41 - Primary Motor Cortex - Part 6

Lecture 42 - Primary Motor Cortex - Part 7

Lecture 43 - Primary Motor Cortex - Part 8

Lecture 44 - Primary Motor Cortex - Part 9

Lecture 45 - Primary Motor Cortex - Part 10

Lecture 46 - Primary Motor Cortex - Part 11

Lecture 47 - Primary Motor Cortex - Part 12

Lecture 48 - Primary Motor Cortex - Part 13

Lecture 49 - Primary Motor Cortex - Part 14

Lecture 50 - Primary Motor Cortex - Part 15

Lecture 51 - Cerebellum - Part 1

Lecture 52 - Cerebellum - Part 2

Lecture 53 - Cerebellum - Part 3

Lecture 54 - Cerebellum - Part 4

Lecture 55 - Cerebellum - Part 5

Lecture 56 - Cerebellum - Part 6

Lecture 57 - Cerebellum - Part 7

Lecture 58 - Cerebellum - Part 8

Lecture 59 - Cerebellum - Part 9

Lecture 60 - Cerebellum - Part 10

Lecture 61 - Cerebellum - Part 11

Lecture 62 - Cerebellum - Part 12

Lecture 63 - Basal Ganglia - Part 1

Lecture 64 - Basal Ganglia - Pathways

Lecture 65 - Basal Ganglia - Inputs

Lecture 66 - Basal Ganglia - Outputs

Lecture 67 - Basal Ganglia - Various Functions

Lecture 68 - Basal Ganglia - Motor Functions

Lecture 69 - Basal Ganglia - Motor Functions.

Lecture 70 - Basal Ganglia - Dopamine and Acetylcholine

Lecture 71 - Basal Ganglia - Disorders

Lecture 72 - Parkinson's Disease - Intro

Lecture 73 - Parkinson's Disease - Rate Model, Pathophysiology

Lecture 74 - Parkinson's Disease - Current therapeutic approaches and the future

Lecture 75 - Basal Ganglia - Various Disorders

Lecture 76 - Neuropsychiatric disorders due to BG dysfunction

Lecture 77 - Parietal and Premotor Cortex - Part 1

Lecture 78 - Parietal and Premotor Cortex - Part 2

Lecture 79 - Parietal and Premotor Cortex - Part 3

Lecture 80 - Parietal and Premotor Cortex - Part 4

Lecture 81 - Parietal and Premotor Cortex - Part 5

Lecture 82 - Parietal and Premotor Cortex - Part 6

NPTEL : NOC:Manage TB (Multi-Disciplinary)

Co-ordinators : Dr. M S Jawahar, Dr.V.V.Banu Rekha, Prof. Mohan Natrajan

Lecture 1 - How is TB affecting public health Globally and Nationally

Lecture 2 - Epidemiology of TB-Session - 1

Lecture 3 - Epidemiology of TB-Session - 2

Lecture 4 - Pathogenesis of TB-Session - 1

Lecture 5 - Pathogenesis of TB-Session - 2

Lecture 6 - Clinical manifestations of TB-Session - 1

Lecture 7 - Clinical manifestations of TB-Session - 2

Lecture 8 - Clinical manifestations of TB-Session - 3

Lecture 9 - Bacteriological Diagnosis of Tuberculosis - Smear and Culture

Lecture 10 - Demonstration of processing of sputum specimen for culture for diagnosis of tuberculosis

Lecture 11 - Demonstration of sputum smear examination for diagnosis of tuberculosis

Lecture 12 - Demonstration of solid culture method for diagnosis of tuberculosis

Lecture 13 - Demonstration of liquid culture method for diagnosis of tuberculosis in sputum

Lecture 14 - Phenotypic drug susceptibility testing in Tuberculosis

Lecture 15 - Demonstration of drug susceptibility testing of first line anti-TB drugs by liquid culture

Lecture 16 - Molecular Diagnosis of Tuberculosis-Session - 1

Lecture 17 - Molecular Diagnosis of Tuberculosis-Session - 2

Lecture 18 - Demonstration of Xpert MTB-RIF assay for diagnosis of tuberculosis from sputum specimens

Lecture 19 - Demonstration of Line Probe Assay (LPA) (Direct detection of tuberculosis and resistance to isoniazid and rifampicin) in sputum

Lecture 20 - Radiology in diagnosis of Tuberculosis-Session - 1

Lecture 21 - Radiology in diagnosis of Tuberculosis-Session - 2

Lecture 22 - Radiology in diagnosis of Tuberculosis-Session - 3

Lecture 23 - Radiology in diagnosis of Tuberculosis-Session - 4

Lecture 24 - Approach to diagnosis of Pulmonary TB

Lecture 25 - Case Discussion-Approach to diagnosis of TB in a person with presumptive pulmonary TB

Lecture 26 - Case Discussion-Approach to diagnosis of pulmonary TB in a patient with negative sputum smear for AFB

Lecture 27 - Approach to diagnosis of Extra-pulmonary TB

Lecture 28 - Case Discussion-Approach to diagnosis of TB in a person with swelling in the neck

Lecture 29 - Case Discussion-Approach to diagnosis of TB spine

Lecture 30 - Diagnosis of Childhood Tuberculosis-Session - 1

Lecture 31 - Diagnosis of Childhood Tuberculosis-Session - 2

Lecture 32 - Video demonstration of gastric fluid aspiration technique in a child

Lecture 33 - Case Discussion-Approach to diagnosis of TB in a child with presumptive pulmonary TB

Lecture 34 - Case Discussion-Approach to diagnosis of TB meningitis in a child

Lecture 35 - Drugs for treating Tuberculosis and Principles of Chemotherapy-Session - 1

Lecture 36 - Drugs for treating Tuberculosis and Principles of Chemotherapy-Session - 2

Lecture 37 - Treatment of Drug Sensitive Pulmonary Tuberculosis

Lecture 38 - Case discussion-Approach to treatment of drug sensitive TB

Lecture 39 - Management of drug resistant Tuberculosis-Session - 1

Lecture 40 - Management of drug resistant Tuberculosis-Session - 2

Lecture 41 - Case discussion-Approach to treatment of Multi-drug resistant TB (MDR-TB)/ Extensively drug resistant TB (XDR-TB)

Lecture 42 - Management of Extra-pulmonary Tuberculosis-Session - 1

Lecture 43 - Management of Extra-pulmonary Tuberculosis-Session - 2

Lecture 44 - Panel discussion-Practical difficulties in the management of Extra-pulmonary TB

Lecture 45 - Management of patients with HIV-TB coinfection-Session - 1

Lecture 46 - Management of patients with HIV-TB coinfection-Session - 2

Lecture 47 - Case discussion-Approach to management of HIV-TB

Lecture 48 - Management of TB in special situations

Lecture 49 - Case discussion-Approach to management of TB in pregnancy

Lecture 50 - Treatment of Pediatric Tuberculosis-Session - 1

Lecture 51 - Treatment of Pediatric Tuberculosis-Session - 2

Lecture 52 - Management of Adverse effects to anti-TB drugs-Session - 1

Lecture 53 - Management of Adverse effects to anti-TB drugs-Session - 2

Lecture 54 - Case discussion-Approach to management of jaundice during anti-TB treatment

Lecture 55 - Case discussion-Approach to management of skin rashes during anti-TB treatment

Lecture 56 - Non-tuberculous Mycobacteria- Diagnosis and Clinical management-Session - 1

Lecture 57 - Non-tuberculous Mycobacteria - Diagnosis and Clinical Management Session - 2

Lecture 58 - Newer Anti-TB drugs and regimens-Session - 1

Lecture 59 - Newer Anti-TB drugs and regimens-Session - 2

Lecture 60 - Management of Latent TB Infection-Session - 1

Lecture 61 - Management of Latent TB Infection-Session - 2

Lecture 62 - Airborne infection control in tuberculosis-Session - 1

Lecture 63 - Airborne infection control in tuberculosis-Session - 2

Lecture 64 - Vaccine for Tuberculosis-Session - 1

Lecture 65 - Vaccine for Tuberculosis-Session - 2

Lecture 66 - Services offered by Revised National TB Control Programme (RNTCP)-Session - 1

Lecture 67 - Services offered by Revised National TB Control Programme (RNTCP)-Session - 2

Lecture 68 - Services offered by Revised National TB Control Programme (RNTCP)-Session - 3

Lecture 69 - Services offered by Revised National TB Control Programme (RNTCP)-Session - 4

Lecture 70 - Tuberculosis notification-Session - 1

Lecture 71 - Tuberculosis notification-Session - 2

Lecture 72 - Addressing Social Barriers in Tuberculosis Control-Session - 1

Lecture 73 - Addressing Social Barriers in Tuberculosis Control-Session - 2

Lecture 74 - Standards for TB Care in India-Session - 1

Lecture 75 - Standards for TB Care in India-Session - 2

Lecture 76 - Global Tuberculosis Control Strategies

NPTEL : NOC:Ecology and Environment (Multi-Disciplinary)

Co-ordinators : Dr. Abhijit P. Deshpande

Lecture 1 - Sustainability

Lecture 2 - Dams

Lecture 3 - Dams

Lecture 4 - Adayar River

Lecture 5 - Adayar River

Lecture 6 - Urbanisation in Western Ghats and Biodiesel

Lecture 7 - Use And Throw Plastic

Lecture 8 - Nano Materials Information Technologhy

Lecture 9 - Definition of Health Risk

Lecture 10 - Transport Of Pollutants in the Environment

Lecture 11 - Assesment of Risk

Lecture 12 - Remediation and Liability

Lecture 13 - Remendiation and Liability

Lecture 14 - Life Cycle Analysis

Lecture 15 - Energy and Environment module - 1

Lecture 16 - Energy and Environment module - 2

Lecture 17 - Energy and Environment module - 3

Lecture 18 - Energy and Environment module - 4

Lecture 19 - Energy and Environment module - 5

Lecture 20 - Energy and Environment module - 6

Lecture 21 - Energy and Environment module - 7

Lecture 22 - Drinking Water Supply: Need and Challenges

Lecture 23 - Drinking Water Supply: Need and Challenges

Lecture 24 - Water Quality Standards And Philosophy of Water Treatment

Lecture 25 - Water Treatment: Point Of Use Filters

Lecture 26 - Wastewater Management in Developing Urban Environments: Indian Scenario

Lecture 27 - Wastewater Recycling: A Sustainable Option For Water Management

Lecture 28 - Sustainable Water Management In Urban Areas - Part 1

Lecture 29 - Sustainable Water Management In Urban Areas - Part 2

Lecture 30 - Ground Water Contamination

Lecture 31 - Groundwater - Sanitation Nexus

Lecture 32 - Chasing Sustainability - The Challenge - Part 1

Lecture 33 - Chasing Sustainability - The Challenge - Part 2

Lecture 34 - Devoloping Frame Works Of Action: Ethics - Part 1

Lecture 35 - Devoloping Frame Works Of Action: Ethics - Part 2

Lecture 36 - Social And sanitation

Lecture 37 - Promoting Policies For Eco-Productive Cities in the global House - Part 1

Lecture 38 - Promoting Policies For Eco-Productive Cities in the global House - Part 2

Lecture 39 - The need to study ecology

Lecture 40 - Ecosystem functions and services

Lecture 41 - What is studied in ecology?

Lecture 42 - Ecological footprint

Lecture 43 - Energy and Material flow in ecosystems and ecological efficiency

Lecture 44 - Energy flow, productivity and Biodiversity

Lecture 45 - Biodiversity, population and ecological principles

NPTEL : NOC:Current Regulatory Requirements for Conducting Clinical Trials in India (Multi-Disciplinary)

Co-ordinators : Prof. Nandini K Kumar, Prof. Sucheta Banerjee Kurundkar, Prof. A. B. Ramteke

Lecture 1 - C1 - L00

Lecture 2 - C1 - Introduction Assorted Interviews

Lecture 3 - C1 - L01

Lecture 4 - C1 - L02

Lecture 5 - C1 - L03

Lecture 6 - C1 - L04

Lecture 7 - C1 - L05

Lecture 8 - C1 - L06

Lecture 9 - C1 - L07

Lecture 10 - C1 - L08

Lecture 11 - C1 - L09

Lecture 12 - C1 - L10A

Lecture 13 - C1 - L10B

NPTEL : NOC:Regulatory Requirements for Medical Devices and IVD kits in India (Multi-Disciplinary)

Co-ordinators : Prof. A. B. Ramteke, Prof. Malay Mitra

Lecture 1 - C2 - Introduction Assorted Interviews

Lecture 2 - C2 - L00

Lecture 3 - C2 - L01

Lecture 4 - C2 - L02

Lecture 5 - C2 - L03

Lecture 6 - C2 - L04

Lecture 7 - C2 - L05

Lecture 8 - C2 - L06

Lecture 9 - C2 - L07

Lecture 10 - C2 - L08

Lecture 11 - C2 - L09

NPTEL : NOC:Numerical Methods for Engineers (Multi-Disciplinary)

Co-ordinators : Dr. Niket S.Kaisare

Lecture 1 - Introduction

Lecture 2 - Overview of Learning Modules

Lecture 3 - Course Plan

Lecture 4 - Tutorial: Excel

Lecture 5 - Errors and Approximations

Lecture 6 - Truncation and Round-Off Errors

Lecture 7 - Binary Numbers: Introduction

Lecture 8 - Floating Point: Real numbers in decimal system

Lecture 9 - Floating Point in Binary system

Lecture 10 - Iterative Method

Lecture 11 - Direct Method

Lecture 12 - Sequential Method

Lecture 13 - Linear Algebra: Basics

Lecture 14 - Introduction to Linear Equations

Lecture 15 - Rank Condition for Solving Linear Equations

Lecture 16 - Motivating Gauss Elimination

Lecture 17 - Gauss Elimination

Lecture 18 - Tutorial Recap: Gauss Elimination

Lecture 19 - Back Substitution to find solution

Lecture 20 - Gauss Jordan and LU Decomposition

Lecture 21 - Partial Pivoting in Gauss Elimination

Lecture 22 - Analysis of Gauss Elimination

Lecture 23 - Tri-Diagonal Systems: Practical Relevance

Lecture 24 - Thomas Algorithm for Tri-Diagonal Systems

Lecture 25 - Gauss Siedel Method

Lecture 26 - Analysis of Gauss Siedel Method

Lecture 27 - Gauss Siedel vs. Jacobi Methods

Lecture 28 - Bonus: Example using MS Excel

Lecture 29 - Summary: Linear Equations

Lecture 30 - Introduction to Nonlinear Equations

Lecture 31 - Bisection Method

Lecture 32 - Analysis of Bisection Method

Lecture 33 - Bonus: Excel Solution for Bisection Method

Lecture 34 - Regula-Falsi Method

Lecture 35 - Bonus: Excel Solution for Regula-Falsi Method

Lecture 36 - Regula-Falsi vs. Secant Method

Lecture 37 - Bonus: Excel Solution for Secant Method

Lecture 38 - Some special cases

Lecture 39 - Fixed-Point Iteration

Lecture 40 - Newton-Raphson Method

Lecture 41 - Analysis of Fixed-Point Iteration

Lecture 42 - Analysis of Newton-Raphson

Lecture 43 - Problems with Newton-Raphson

Lecture 44 - Multi-Variable Fixed-Point Iteration

Lecture 45 - Multi-Variable Newton-Raphson

Lecture 46 - Out of Syllabus: Improvements to NR Methods

Lecture 47 - Out of Syllabus: Roots of a polynomial

Lecture 48 - Summary

Lecture 49 - Introduction: Regression and Interpolation

Lecture 50 - Linear Regression in One Variable

Lecture 51 - Recap: Formula for Linear Regression

Lecture 52 - Bonus: Linear Regression using MS-Excel

Lecture 53 - Linear Regression in Multiple Variables

Lecture 54 - Matrix Method for Multi-Linear Regression

Lecture 55 - Polynomial Regression

Lecture 56 - Functional Regression

Lecture 57 - Bonus: X-Y versus Y-X data (Using MS Excel)

Lecture 58 - Interpolation: Introduction and A NaÃ¯ve Extension

Lecture 59 - Bonus: MS-Excel for NaÃ¯ve Interpolation

Lecture 60 - Lagrange Interpolating Polynomials

Lecture 61 - Newton's Forward Difference Polynomial

Lecture 62 - Newton's Divided Differences: Derivation

Lecture 63 - Interpolation Examples

Lecture 64 - Bonus: MS-Excel for Newton's Polynomial

Lecture 65 - Summary: Regression and Interpolation

Lecture 66 - Numerical Differentiation: Introduction

Lecture 67 - Numerical Differentiation Formula and Analysis

Lecture 68 - Derivation using Method of undetermined coefficients

Lecture 69 - Three-point differentiation formulae

Lecture 70 - Bonus: Differentiation using MS-Excel

Lecture 71 - Truncation vs. Round-Off Errors

Lecture 72 - Numerical Differentiation Examples

Lecture 73 - Summary of Numerical Differentiation

Lecture 74 - Numerical Integration: Introduction

Lecture 75 - Trapezoidal rule and Derivation

Lecture 76 - Simpson's Rules for Integration

Lecture 77 - Bonus: MS-Excel for Numerical Integration

Lecture 78 - Error Analysis for Simpson's Rules

Lecture 79 - Numerical Integration Examples

Lecture 80 - Bonus: Integration using MS-Excel

Lecture 81 - Summary of Newton Cotes Formulae

Lecture 82 - Richardson's Extrapolation

Lecture 83 - Gauss Quadrature

Lecture 84 - Summary of Numerical Integration

Lecture 85 - Introduction to ODE-IVP

Lecture 86 - Motivation using an Example (Bonus)

Lecture 87 - Euler's Methods and Second-Order Methods

Lecture 88 - Second-Order Runge-Kutta Methods

Lecture 89 - Summary of RK-2

Lecture 90 - Higher order RK Methods

Lecture 91 - Bonus: ODE-IVP using MS-Excel

Lecture 92 - Bonus: RK-2 and RK-4 Methods using MS-Excel

Lecture 93 - Summary and Recap

Lecture 94 - Introduction to Predictor-Corrector Methods

Lecture 95 - Stability of Implicit Methods: Overview

Lecture 96 - Stability Analysis of Euler's Methods

Lecture 97 - Extension to multiple variables

Lecture 98 - Local vs. Global Truncation Errors

Lecture 99 - Richardson's Extrapolation

Lecture 100 - Stiff System of ODEs: Introduction

Lecture 101 - Adaptive Step-sizing

Lecture 102 - Adaptive step-sizing and Embedded Methods

Lecture 103 - Bonus: Errors and Extrapolation using MS-Excel

Lecture 104 - Summary and Recap (Weeks 10 and 11)

Lecture 105 - Introduction to ODE-BVP

Lecture 106 - Shooting Method: An Overview

Lecture 107 - Finite Difference Method: An Overview

Lecture 108 - Solution using Shooting Method

Lecture 109 - Algorithm for Shooting Method

Lecture 110 - Problems with Shooting Method

Lecture 111 - Solving ODE-BVP using Finite Difference Method

Lecture 112 - Microsoft Excel based Solution

Lecture 113 - Recap of Week-12 (ODE-BVP)

NPTEL : Basic Course in Biomedical Research (Multi-Disciplinary)

Co-ordinators : Dr. Sanjay Mehendale

Lecture 1 - Introduction to health research

Lecture 2 - Formulating research question

Lecture 3 - Literature review

Lecture 4 - Measures of disease frequency

Lecture 5 - Descriptive study designs

Lecture 6 - Analytical study designs

Lecture 7 - Experimental study designs: Clinical trials

Lecture 8 - Validity of epidemiological studies

Lecture 9 - Qualitative research methods: An overview

Lecture 10 - Measurement of study variables

Lecture 11 - Sampling methods

Lecture 12 - Calculating sample size and power

Lecture 13 - Selection of study population

Lecture 14 - Study plan and project management

Lecture 15 - Designing data collection tools

Lecture 16 - Principles of data collection

Lecture 17 - Data management

Lecture 18 - Overview of data analysis

Lecture 19 - Ethical framework for health research

Lecture 20 - Conducting clinical trails

Lecture 21 - Preparing a concept paper for research projects

Lecture 22 - Elements of a protocol for research studies

NPTEL : NOC:Thermodynamics (Multi-Disciplinary)

Co-ordinators : Prof. Anand T. N. C

Lecture 1 - Basic concepts and definitions - Part 1

Lecture 2 - Basic concepts and definitions - Part 2

Lecture 3 - Basic concepts and definitions - Part 3

Lecture 4 - Tutorial problems on exact and inexact differential

Lecture 5 - Basic concepts and definitions - Part 4

Lecture 6 - Work - Part 1

Lecture 7 - Work - Part 2

Lecture 8 - Work - Part 3

Lecture 9 - Work - Part 4

Lecture 10 - Work - Part 5

Lecture 11 - Tutorial problem on 'Work' - Part 1

Lecture 12 - Tutorial problem - Part 2

Lecture 13 - Tutorial problem on 'Work' - Part 3

Lecture 14 - Tutorial problem on 'Work' - Part 4

Lecture 15 - Zeroth law of thermodynamics

Lecture 16 - Methods of temperature measurement

Lecture 17 - Modes of heat transfer

Lecture 18 - Tutorial problem on 'Modes of heat transfer'

Lecture 19 - Tutorial problem on 'Methods of temperature measurement'

Lecture 20 - First law of thermodynamics

Lecture 21 - Tutorial problem - Part 1

Lecture 22 - Tutorial problem - Part 2

Lecture 23 - Heat and work interactions for a system

Lecture 24 - Tutorial problem - Part 1

Lecture 25 - Pure substance

Lecture 26 - Tutorial problem - Part 2

Lecture 27 - Ideal gas - Part 1

Lecture 28 - Ideal gas - Part 2

Lecture 29 - Tutorial problem - Part 3

Lecture 30 - Tutorial problem - Part 4

Lecture 31 - Tutorial problem - Part 5

Lecture 32 - Specific heats at constant pressure and constant volume

Lecture 33 - Tutorial problem - Part 6

Lecture 34 - Tutorial problem - Part 7

Lecture 35 - Ideal gas - Part 3

Lecture 36 - Ideal gas - Part 4

Lecture 37 - Ideal gas - Part 5

Lecture 38 - Tutorial problem - Part 1

Lecture 39 - Tutorial problem - Part 2

Lecture 40 - Tutorial problem - Part 3

Lecture 41 - Tutorial problem - Part 4

Lecture 42 - Beyond ideal gases - Part 1

Lecture 43 - Beyond ideal gases - Part 2

Lecture 44 - Two phase system - Part 1

Lecture 45 - Two phase system - Part 2

Lecture 46 - Two phase system: water and steam

Lecture 47 - Tutorial problems (2 numbers)

Lecture 48 - Tutorial problem - Part 1

Lecture 49 - Tutorial problem - Part 2

Lecture 50 - Tutorial problem - Part 3

Lecture 51 - Tutorial problems on two-phase systems (2 numbers)

Lecture 52 - Tutorial problem (1 number)

Lecture 53 - Rate equation of the first law of thermodynamics for a control mass and a control volume

Lecture 54 - Energy equation for a steady-state, steady-flow process in selected engineering devices

Lecture 55 - Tutorial problems (3 numbers)

Lecture 56 - Tutorial problem - Part 1

Lecture 57 - Tutorial problem - Part 2

Lecture 58 - Quasi-static process revisited: Work against an external force

Lecture 59 - Second law of thermodynamics: limitations of the first law of thermodynamics

Lecture 60 - Second law of thermodynamics: direct and reverse heat engine

Lecture 61 - Second law of thermodynamics: Kelvin-Planck and Clausius statements

Lecture 62 - Second law of thermodynamics: reversible process

Lecture 63 - Second law of thermodynamics: Carnot's cycle and theorems

Lecture 64 - Second law of thermodynamcis: absolute temperature scale

Lecture 65 - Tutorial problems (2 numbers)

Lecture 66 - Tutorial problem (1 number)

Lecture 67 - Tutorial problem (1 number)

Lecture 68 - Tutorial problem (2 numbers)

Lecture 69 - Second law of thermodynamics: Clausius's inequality

Lecture 70 - Entropy - Part 1

Lecture 71 - Tutorial problem (1 number)

Lecture 72 - Entropy - Part 2

Lecture 73 - Entropy - Part 3

Lecture 74 - Entropy - Part 4

Lecture 75 - Tutorial problem (1 number)

Lecture 76 - Tutorial problem (1 number)

Lecture 77 - Tutorial problems (2 numbers)

Lecture 78 - Entropy - Part 5

Lecture 79 - Entropy - Part 6

Lecture 80 - Entropy - Part 7

Lecture 81 - Exergy - Part 1

Lecture 82 - Exergy - Part 2

Lecture 83 - Exergy - Part 3

Lecture 84 - Thermodynamics cycles: Rankine cycle

Lecture 85 - Tutorial problem (1 number)

Lecture 86 - Thermodynamics cycles: Brayton cycle

Lecture 87 - Tutorial problem (1 number)

Lecture 88 - Thermodynamics cycles: vapor compression refrigeration cycle

Lecture 89 - Tutorial problem (1 number)

NPTEL : NOC:Regulatory Requirements for Medical Devices including in Vitro Diagnostics in India (Version 2.0) (Multi-Disciplinary)

Co-ordinators : Prof. Malay Mitra, Prof. Aseem Sahu, Prof. Arun B.Ramteke

Lecture 1 - Courses Overview

Lecture 2 - Medical device and in vitro diagnostics: Introduction and types of devices including combination devices

Lecture 3 - Medical Device Rules, 2017: Implications on medical devices

Lecture 4 - Classification of medical devices

Lecture 5 - Labelling of medical devices and in vitro diagnostics

Lecture 6 - Standards of medical device, quality assurance and testing

Lecture 7 - Regulatory requirements of biocompatibility of medical devices and ISO 10993

Lecture 8 - Clinical investigation of medical devices, regulation of investigational medical devices

Lecture 9 - Quality assurance and quality management system

Lecture 10 - How to obtain a licence to manufacture a medical device?

Lecture 11 - ISO 14971 (Medical devices: Application of risk management to medical devices)

Lecture 12 - Inspection of medical device and IVD establishments

Lecture 13 - Import and export of medical devices and IVDs

Lecture 14 - Medical device regulation: International practices

NPTEL : NOC:Current Regulatory Requirements for Conducting Clinical Trials in India for Investigational New Drugs (Version 2.0) (Multi-Disciplinary)

Co-ordinators : Prof. Nandini K Kumar, Prof. Y. K. Gupta, Prof. D. K. Sable, Prof. Arun B. Ramteke, Prof. Rubina Bose, Prof. Sucheta Banerjee Kurundkar, Prof. Vishnu Rao

Lecture 1 - Courses Overview

Lecture 2 - Overview of Indian regulatory system

Lecture 3 - Overview of Drugs and Cosmetics Act and Rules thereunder

Lecture 4 - Overview of New Drugs and Clinical Trials Rules, 2019

Lecture 5 - Pre-Clinical Data Requirements

Lecture 6 - Rules Governing Clinical Trials

Lecture 7 - Phases of clinical trial, forms, and fees

Lecture 8 - Regulatory pathway and data requirements for NDCT, 2019

Lecture 9 - BA/BE study and study centers: Legal provisions

Lecture 10 - Guidelines to conduct BA/BE studies

Lecture 11 - Ethics Committee registration and re-registration

Lecture 12 - Ethical Considerations

Lecture 13 - Good Clinical Practice

Lecture 14 - Requirements for import/manufacture of new drug/IND for conducting clinical trials in India

Lecture 15 - Requirements for import/manufacture of new drug/IND for sale/ distribution and unapproved new drug for patients

Lecture 16 - Important issues

Lecture 17 - Special concern

Lecture 18 - Clinical trial related guidelines (NDCT Rules)

Lecture 19 - Content of Proposed Clinical Trial Protocol

Lecture 20 - Content of a Clinical Trial Report

Lecture 21 - Post Marketing Assessment and Clinical Trial Compensation

Lecture 22 - Common observations during submission of CT/BA/BE protocol

Lecture 23 - Common observations during CT/BA/BE centre inspections

Lecture 24 - Drug development process: Overview

Lecture 25 - Salient feature of NDCT 2019 - what's new in NDCT?

Lecture 26 - Online Submission 23A: Sugam

Lecture 27 - Online Submission (CTRI)

Lecture 28 - Tables Given in NDCT 2019 and its Content

NPTEL : NOC:Model Predictive Control: Theory and Applications (Multi-Disciplinary)

Co-ordinators : Dr. Niket S.Kaisare

Lecture 1 - Course Background: Model Predictive Control

Lecture 2 - Course Outline

Lecture 3 - Additional MATLAB Video - Array Operations

Lecture 4 - Additional MATLAB Video - Array Operations

Lecture 5 - Recap: Linear Algebra

Lecture 6 - Recap: Differential and Difference Equations

Lecture 7 - Recap: Process Control Basics

Lecture 8 - Introduction to Model Predictive Control

Lecture 9 - MPC: Salient Features

Lecture 10 - MPC: Historical Perspective

Lecture 11 - Vectors and Matrices

Lecture 12 - Vector Spaces

Lecture 13 - Linear Operation

Lecture 14 - Null and Image Spaces

Lecture 15 - Eigenvalues and Eigenvectors

Lecture 16 - Eigenvalue Decomposition and Tutorial

Lecture 17 - Recap of Week-2

Lecture 18 - Model Classification

Lecture 19 - Discrete-Time Models Overview

Lecture 20 - Discrete-Time Models

Lecture 21 - Finite Impulse Response Models

Lecture 22 - Finite Step Response Models

Lecture 23 - Recap and Plan for Week-4

Lecture 24 - State Space and Step Response Models

Lecture 25 - Nonlinear Models and Model Linearization

Lecture 26 - Model Types and Model Conversion

Lecture 27 - Model Conversion - 2

Lecture 28 - Model Conversion: TF to SS

Lecture 29 - How to handle MIMO systems

Lecture 30 - Discretization of State-Space Models

Lecture 31 - Introduction to Dynamic Matrix Control (DMC)

Lecture 32 - The DMC Algorithm: Future Predictions

Lecture 33 - The DMC Algorithm: Objective and Constraints

Lecture 34 - The DMC Algorithm: Optimization

Lecture 35 - Coding for DMC Algorithm: Setup

Lecture 36 - Coding for DMC Algorithm: Populate Matrices

Lecture 37 - Recap of DMC Algorithm

Lecture 38 - Extensions of DMC Algorithm

Lecture 39 - LTI Models and Coordinate Transform

Lecture 40 - LTI Models: Stability

Lecture 41 - LTI Models: Controllability

Lecture 42 - LTI Models: Conditions for controllability

Lecture 43 - Tutorial by Arvind (Recap of Controllability)

Lecture 44 - LTI Models: Observability

Lecture 45 - Linear Control: Introduction

Lecture 46 - Pole Placement Controller

Lecture 47 - Linear Quadratic Regulator: Batch Solution

Lecture 48 - LQR: Dynamic Programming Solution

Lecture 49 - State Estimation: Introduction

Lecture 50 - Stochastic Processes and Random Variables

Lecture 51 - State Estimation: Pole Placement Observer

Lecture 52 - Kalman Filter: Terminology

Lecture 53 - Kalman Filter: Derivation

Lecture 54 - Recap of Modules 7-9

Lecture 55 - Recap and Plan for this week

Lecture 56 - Linear Quadratic Gaussian

Lecture 57 - LQG Derivation and Separation Principle

Lecture 58 - Setpoint Tracking in LQ Control

Lecture 59 - Disturbance Rejection in LQ Control

Lecture 60 - Disturbance Modeling for Estimation

Lecture 61 - Estimation with Disturbance Modeling

Lecture 62 - Recap and Plan for this week

Lecture 63 - State-Space MPC: Deterministic case

Lecture 64 - Extension to Measured Disturbances

Lecture 65 - Offset-Free State Space MPC

Lecture 66 - Comparison of State-Space MPC with DMC

Lecture 67 - State-Space MPC: Disturbance Modeling

Lecture 68 - Disturbance Modeling: Background and Setup

Lecture 69 - Stochastic Output-Feedback State-Space MPC

Lecture 70 - Bonus Video: Disturbance Modeling for State Space MPC

Lecture 71 - Self-Guided Tutorial of MPC Toolbox

Lecture 72 - Help Session: Using MPC Toolbox

Lecture 73 - Recap of LQ Control and Linear MPC

Lecture 74 - Linear MPC - Key Features and Results

Lecture 75 - Practical Issues: Inferential Control

Lecture 76 - Practical Issues: Measurement Delay

Lecture 77 - Other Practical Issues

Lecture 78 - Some Classical Examples of MPC

NPTEL : NOC:Research Methodology (Multi-Disciplinary)

Co-ordinators : Prof. Soumitro Banerjee

Lecture 1 - What is Science? - Part 1

Lecture 2 - What is Science? - Part 2

Lecture 3 - Subjective Thinking Versus Objective Thinking

Lecture 4 - Idealism Versus Materialism

Lecture 5 - Causality - Part 1

Lecture 6 - Causality - Part 2

Lecture 7 - Logical Reasoning: Inductive Logic

Lecture 8 - Logical Reasoning: Deductive Logic - Part 1

Lecture 9 - Logical Reasoning: Deductive Logic - Part 2

Lecture 10 - Logical Reasoning: Syllogistic Logic - Part 1

Lecture 11 - Logical Reasoning: Syllogistic Logic - Part 2

Lecture 12 - Logical Reasoning: Syllogism Logic, Truth and Validity

Lecture 13 - Historical Perspective: Emergence of Materialism and Idealism - Part 1

Lecture 14 - Historical Perspective: Emergence of Materialism and Idealism - Part 2

Lecture 15 - Historical Perspective:Renaissance to the Development of Mechanical Materialism - Part 1

Lecture 16 - Historical Perspective:Renaissance to the Development of Mechanical Materialism - Part 2

Lecture 17 - Historical Perspective: The Advent of Empiricism and the Idea of Evolution

Lecture 18 - Historical Perspective: Science in Ancient India

Lecture 19 - Historical Perspective: The Advent of Scientific Materialism - Part 1

Lecture 20 - Historical Perspective: The Advent of Scientific Materialism - Part 2

Lecture 21 - Historical Perspective: The Rise and Fall of Positivism - Part 1

Lecture 22 - Historical Perspective: The Rise and Fall of Positivism - Part 2

Lecture 23 - What Scientists Actually Do - Part 1

Lecture 24 - What Scientists Actually Do - Part 2

Lecture 25 - Falsifiability and Reproducibility - Part 1

Lecture 26 - Falsifiability and Reproducibility - Part 2

Lecture 27 - Proposing a Hypothesis - Part 1

Lecture 28 - Proposing a Hypothesis - Part 2

Lecture 29 - Elements of Scientific Measurement - Part 1

Lecture 30 - Elements of Scientific Measurement - Part 2

Lecture 31 - The Central Limit Theorem and its Applications - Part 1

Lecture 32 - The Central Limit Theorem and its Applications - Part 2

Lecture 33 - Error Bars and Confidence Interval - Part 1

Lecture 34 - Error Bars and Confidence Interval - Part 2

Lecture 35 - Measurement of a Proportion - Part 1

Lecture 36 - Measurement of a Proportion - Part 2

Lecture 37 - Examples of Proportion Measurement

Lecture 38 - Box and Whisker Plot

Lecture 39 - Propagation of Errors - Part 1

Lecture 40 - Propagation of Errors - Part 2

Lecture 41 - Issues in Hypothesis Testing - Part 1

Lecture 42 - Issues in Hypothesis Testing - Part 2

Lecture 43 - Statistical Methods in Hypothesis Testing: Z-Test and T-Test - Part 1

Lecture 44 - Statistical Methods in Hypothesis Testing: Z-Test and T-Test - Part 2

Lecture 45 - Hypothesis Testing: The Chi-Square Test - Part 1

Lecture 46 - Hypothesis Testing: The Chi-Square Test - Part 2

Lecture 47 - Hypothesis Testing: The Chi-Square Test - Part 3

Lecture 48 - Hypothesis Testing: The Chi-Square Test - Part 4

Lecture 49 - Theoretical Research: Functional Relationships from Experimental Data - Part 1

Lecture 50 - Theoretical Research: Functional Relationships from Experimental Data - Part 2

Lecture 51 - Theoretical Research: Mathematical Models of Physical Systems

Lecture 52 - Order of Magnitude Calculations

Lecture 53 - Theoretical Research: Modeling Using Dimensional Analysis - Part 1

Lecture 54 - Theoretical Research: Modeling Using Dimensional Analysis - Part 2

Lecture 55 - An Example of Mathematical Modeling

Lecture 56 - Importance of Theory-Building in Science

Lecture 57 - Scientific Writing: Journal Papers - Part 1

Lecture 58 - Scientific Writing: Journal Papers - Part 2

Lecture 59 - Scientific Writing: Journal Papers - Part 3

Lecture 60 - Scientific Writing: Journal Papers - Part 4

Lecture 61 - Scientific Writing: PhD Thesis

Lecture 62 - Scientific Writing: Text Stylistics

Lecture 63 - Presentation in Scientific Conferences - Part 1

Lecture 64 - Presentation in Scientific Conferences - Part 2

Lecture 65 - Writing Grant Proposals - Part 1

Lecture 66 - Writing Grant Proposals - Part 2

Lecture 67 - Ethical Conduct in Science: Aspects of Scientific Ethics

Lecture 68 - Ethical Conduct in Science: Research Misconduct

Lecture 69 - Ethical Conduct in Science: Ethics in Scientific Publication - Part 1

Lecture 70 - Ethical Conduct in Science: Ethics in Scientific Publication - Part 2

Lecture 71 - Ethical Conduct in Science: Cases of Scientific Misconduct - Part 1

Lecture 72 - Ethical Conduct in Science: Cases of Scientific Misconduct - Part 2

NPTEL : NOC:Management of Medical Emergencies in Dental Practice (Multi-Disciplinary)

Co-ordinators : Multifaculty

Lecture 1 - Vasovagal Syncope

Lecture 2 - Vasovagal Syncope - Clinical Scenario

Lecture 3 - Postural Hypotension

Lecture 4 - Postural Hypotension - Clinical Scenario

Lecture 5 - Hyperventilation

Lecture 6 - Hyperventilation - Clinical Scenario

Lecture 7 - Asthma - Status Asthmaticus - Part 1

Lecture 8 - Asthma - Status Asthmaticus - Part 2

Lecture 9 - Asthma - Clinical Scenario

Lecture 10 - Chest Pain Of Cardiac Origin - Myocardial Infarction And Anigina Pectoris - Part 1

Lecture 11 - Chest Pain Of Cardiac Origin - Myocardial Infarction And Anigina Pectoris - Part 2

Lecture 12 - Chest Pain - Clinical Scenario

Lecture 13 - Acute Adrenal Insufficiency

Lecture 14 - Acute Adrenal Insufficiency - Clinical Scenario

Lecture 15 - Diabetes Mellitus

Lecture 16 - Diabetes Mellitus - Clinical Scenario

Lecture 17 - Throid Dysfunction

Lecture 18 - Allergies/Hypersensitivity Reaction - Part 1

Lecture 19 - Allergies/Hypersensitivity Reaction - Part 2

Lecture 20 - Epilepsy- Status Epilepticus

Lecture 21 - Chronic Kidney Disease

Lecture 22 - Hepatic Dysfunction

Lecture 23 - Basic Life Support - Part 1

Lecture 24 - Basic Life Support - Part 2

NPTEL : NOC:Basic Course in Ornithology (Multi-Disciplinary)

Co-ordinators : Prof. Mousumi Ghosh, Prof. Manjari Jain, Prof. R Jayapal, Prof. Anand Krishnan, Prof. Suhel Quader, Prof. V.V. Robin, Prof. Umesh Srinivasan

Lecture 1 - Introduction to Ornithology

Lecture 2 - Diversity and Classification - Part 1

Lecture 3 - Diversity and Classification - Part 2

Lecture 4 - Evolution and Speciation - Part 1

Lecture 5 - Evolution and Speciation - Part 2

Lecture 6 - Anatomy

Lecture 7 - Physiology

Lecture 8 - Colour

Lecture 9 - Life History

Lecture 10 - Foraging Behaviour

Lecture 11 - Mating and Breeding Behaviour

Lecture 12 - Social Behaviour

Lecture 13 - Methods of Science and Research Questions

Lecture 14 - Vocal Behaviour: Mechanisms - Part 1

Lecture 15 - Vocal Behaviour: Mechanisms - Part 2

Lecture 16 - Vocal Behaviour: Ecology and Evolution - Part 1

Lecture 17 - Vocal Behaviour: Ecology and Evolution - Part 2

Lecture 18 - Vocal Mimicry in Birds

Lecture 19 - Basics of Research Design

Lecture 20 - Bird Migration - LIVE Guest Lectuer

Lecture 21 - Bird Populations: Concepts

Lecture 22 - Bird Communities: Concepts - Part 1

Lecture 23 - Bird Communities: Concepts - Part 2

Lecture 24 - Interactive Session by Dr Mousumi Ghosh (NCF) and Dr Umesh Srinivasan (IISc)

Lecture 25 - Studying bird populations and communities - Part 1

Lecture 26 - Studying bird populations and communities - Part 2

Lecture 27 - Mixed Species Flocks - Live Session

Lecture 28 - Interactive session with Dr. Priti Bangal (NCF) and Dr. Umesh Srinivasan (IISc)

Lecture 29 - Introduction to Data Visualisation Analysis - Part 1

Lecture 30 - Introduction to Data Visualisation Analysis - Part 2

Lecture 31 - Basic Course in Ornithology - Guest Session on Avian Diseases

Lecture 32 - Biogeography

Lecture 33 - Macroecology

Lecture 34 - Macroecology - Case Study - LIVE

Lecture 35 - Week 10 Interactive session with Dr VV Robin and Dr Umesh Srinivasan

Lecture 36 - Bird Conservation - Concepts

Lecture 37 - Avian Conservation: Case study 1

Lecture 38 - Avian Conservation: Case study 2

Lecture 39 - Avian Conservation: Case study 3

Lecture 40 - Avian Conservation: Case study 4

Lecture 41 - Avian Conservation: Case study 5

Lecture 42 - LIVE - Citizen Science - Guest faculty by Dr Ashwin Viswanathan (NCF)

Lecture 43 - Molecular Techniques - Part 1

Lecture 44 - Molecular Techniques - Part 2

NPTEL : NOC:Oral Biology (Multi-Disciplinary)

Co-ordinators : Multifaculty

Lecture 1 - Craniofacial anatomy - Part 1

Lecture 2 - Craniofacial anatomy - Part 2

Lecture 3 - Tooth and It's Supporting Structures - Part 1

Lecture 4 - Tooth and It's Supporting Structures - Part 2

Lecture 5 - Specialised mucosa

Lecture 6 - Saliva-Composition and functions

Lecture 7 - Saliva Diagnostics

Lecture 8 - Stem cells in the oro-dental region

Lecture 9 - Stem cell isolation

Lecture 10 - Mineralization dynamics - Part 1

Lecture 11 - Mineralization dynamics - Part 2

Lecture 12 - TMJ Anatomy and Function

Lecture 13 - Oral defense mechanisms

Lecture 14 - Mucosal and regional immunology

Lecture 15 - Oral microbiome

Lecture 16 - Evaluation of Oral microbiome

Lecture 17 - Dysbiosis

Lecture 18 - Molecular mechanisms in oral cancer

Lecture 19 - Flow cytometry in cell and molecular biology

Lecture 20 - Basics of Biomaterial science and engineering

Lecture 21 - Biomimetics - Part 1

Lecture 22 - Biomimetics - Part 2

Lecture 23 - Biomaterials - Polymers

Lecture 24 - Biomaterials - Metals

Lecture 25 - Biomaterials - Ceramics and Colloids

Lecture 26 - 3-D Bioprinting

Lecture 27 - Protein mediated biomaterials

Lecture 28 - Immune response to biomaterials

Lecture 29 - Biomaterial Applications

Lecture 30 - Biocompatible assays

Lecture 31 - Immunoassay

NPTEL : NOC:Introduction to Biomimicry (Multi-Disciplinary)

Co-ordinators : Prof. Sivakumar Srinivasan, Prof. Satya Seshadri, Prof. Mrinalini, Prof. Shiva Subramaniam

Lecture 1 - Course overview

Lecture 2 - What is biomimicry ?

Lecture 3 - Why is biomimicry important ?

Lecture 4 - Nature's unifying patterns - Introduction

Lecture 5 - Case study

Lecture 6 - How to do biomimicry ?

Lecture 7 - Learning resources - Biomimicry Institute

Lecture 8 - Skills, attitudes and mindset for a biomimic

Lecture 9 - Course activity

Lecture 10 - Recap of Week 1

Lecture 11 - What are we mimicking ?

Lecture 12 - Function and Strategy

Lecture 13 - Approaches to biomimicry

Lecture 14 - From Problem to Solution

Lecture 15 - Using the UNSDG to identify challenges

Lecture 16 - Recap of Week 2

Lecture 17 - Step 1 - Define the problem

Lecture 18 - Step 2 - Biologize the problem

Lecture 19 - Step 3 - Discover strategies in nature

Lecture 20 - Applying the Biomimicry Design Spiral

Lecture 21 - Step 4 - Abstract design strategies from nature

Lecture 22 - Step 5 - Emulate nature's strategies in your solution

Lecture 23 - Step 6 - Evaluate feasibility

Lecture 24 - How to apply the biomimicry process ?

Lecture 25 - Recap of Week 4

Lecture 26 - Nature's Unifying Patterns I

Lecture 27 - Systems Thinking - Introduction

Lecture 28 - Systems Thinking - Understanding consequences

Lecture 29 - Nature's Unifying Patterns II

Lecture 30 - Tools - Mind mapping

Lecture 31 - Using biomimicry to design a solution

Lecture 32 - Recap of Week 6

Lecture 33 - Developing creative confidence

Lecture 34 - Learning from the biomimicry process

Lecture 35 - The need for creativity in our lives

Lecture 36 - Unlocking your creativity

Lecture 37 - Taking your biomimicry ideas to market

Lecture 38 - The journey so far

Lecture 39 - Finding the hero in you

Lecture 40 - Course wrap-up

NPTEL : NOC:Electrocardiogram - Interpretation and Application in Clinical Practice (Multi-Disciplinary)

Co-ordinators : Multi-faculty

Lecture 1 - Introduction - Electrocardiogram - Interpretation and application in clinical practice

Lecture 2 - Basic Conduction of Heart

Lecture 3 - ECG Lead system

Lecture 4 - Recording of a Standard ECG (Lead placements and measurements)

Lecture 5 - Waveforms, Intervals and Segments

Lecture 6 - Vector Electrocardiography

Lecture 7 - From Action Potentials to Arrhythmias

Lecture 8 - Pathophysiology, Myocardial Ischemia / Injury

Lecture 9 - Myocardial Infarction (MI), Pathophysiology

Lecture 10 - Drug effects on ECG

Lecture 11 - Patient identification, preparation and interpretation of ECG

Lecture 12 - Sinus rhythms and Bradyarrythmias

Lecture 13 - Approach to tachyarrhythmias

Lecture 14 - AV Blocks and Bundle Branch Block

Lecture 15 - Chamber enlargement and Heart Failure

Lecture 16 - Electrolyte Abnormalities on ECG

Lecture 17 - Recognizing signs and ECG changes in Myocardial Ischemia/Injury

Lecture 18 - ECG changes in myocardial infarction

Lecture 19 - Miscellaneous ECG findings and cardiac arrest

Lecture 20 - Pacemaker Rhythms

NPTEL : NOC:One Health (Multi-Disciplinary)

Co-ordinators : Multi Faculty

Lecture 1 - Introduction to the One Health Concept and National and International health/public health agencies

Lecture 2 - Global Health vs One Health

Lecture 3 - Basics of Research Ethics

Lecture 4 - Integrated human and animal disease surveillance systems

Lecture 5 - Emerging infectious diseases

Lecture 6 - Process of disease emergence and assessment of the risk factors

Lecture 7 - Mechanisms of pathogen cross over across species boundaries

Lecture 8 - Importance of disease detection, Identification and monitoring in public health

Lecture 9 - Introduction to disease vectors and basics of Medical Entomology

Lecture 10 - The factors influencing an emerging disease

Lecture 11 - Antimicrobial resistance a global threat and Importance of antibiotic stewardship program

Lecture 12 - Introduction of Food safety and food borne diseases

Lecture 13 - What are zoonotic diseases and its role in our changing world

Lecture 14 - The integration of human, animal and ecosystem health in control and prevention of these diseases

Lecture 15 - Community engagement for zoonotic disease control in humans and animals through One Health

Lecture 16 - Basics of Epidemiological Studies

Lecture 17 - Rapid Response system, Disaster Management and Outbreak Investigation Plans

Lecture 18 - Basic statistical methods and their application and the measurement of disease frequency

Lecture 19 - Principles of survey design and the concepts of sampling and Mixed method research

Lecture 20 - Introduction to health policy

Lecture 21 - Risk Communication and Pandemic Preparedness

Lecture 22 - Role of community in disease control and ways for community engagement

Lecture 23 - Uses of different types of media for communication

NPTEL : NOC:Canning Technology, Value Addition of Seafood (Fish Processing) (Multi-Disciplinary)

Co-ordinators : Dr. Abhilash Sasidharan, Dr. Maya Raman

Lecture 1 - Course overview Canning technology and Value addition of sea food

Lecture 2 - Introduction and the concept of canning technology

Lecture 3 - History of canning technology - Part 1

Lecture 4 - History of canning technology - Part 2

Lecture 5 - Canning Technology and Value Addition Containers and their Properties - Part 1

Lecture 6 - Canning Technology and Value Addition Containers and their Properties - Part 2

Lecture 7 - Canning Technology and Value Addition Containers and their Properties - Part 3

Lecture 8 - Canning Technology and Value Addition Containers and their Properties - Part 4

Lecture 9 - Canning Technology and Value Addition - Canning process - Part 1

Lecture 10 - Canning Technology and Value Addition - Canning process - Part 2

Lecture 11 - Canning Technology and Value Addition - Thermal process calculations - Part 1

Lecture 12 - Canning Technology and Value Addition - Thermal process calculations - Part 2

Lecture 13 - Microbiology and spoilage of canned food - Part 1

Lecture 14 - Microbiology and spoilage of canned food - Part 2

Lecture 15 - Process of seafood canning - Part 1

Lecture 16 - Process of seafood canning - Part 2

Lecture 17 - Seafood pre-processing - Part 1

Lecture 18 - Seafood pre-processing - Part 2

Lecture 19 - Additives - Part 1

Lecture 20 - Additives - Part 2

Lecture 21 - SOP for seafood canning - Part 1

Lecture 22 - SOP for seafood canning - Part 2

Lecture 23 - SOP for seafood canning - Part 3

Lecture 24 - Nutritional quality of seafood

Lecture 25 - Muscle structure of seafood

Lecture 26 - Spoilage in seafood

Lecture 27 - Preservation methods

Lecture 28 - Value addition in thermally processed foods

Lecture 29 - Quality standards for seafood value added products - Part 1

Lecture 30 - Quality standards for seafood value added products - Part 2

Lecture 31 - Quality standards for seafood value added products - Part 3

NPTEL : NOC:Food Packaging Technology (Multi-Disciplinary)

Co-ordinators : Dr. Jenny Ann John, Dr. Maya Raman

Lecture 1 - Course overview

Lecture 2 - Introduction

Lecture 3 - Paper as packaging material - Part 1

Lecture 4 - Paper as packaging material - Part 2

Lecture 5 - Paper as packaging material - Part 3

Lecture 6 - Glass as packaging material

Lecture 7 - Metal as packaging material - Part 1

Lecture 8 - Metal as packaging material - Part 2

Lecture 9 - Plastic as packaging material - Part 1

Lecture 10 - Plastic as packaging material - Part 2

Lecture 11 - Introduction to packaging system

Lecture 12 - Product characteristics and packaging requirements

Lecture 13 - Rigid, semi-rigid, flexible packaging forms - Part 1

Lecture 14 - Rigid, semi-rigid, flexible packaging forms - Part 2

Lecture 15 - Designing of packaging material

Lecture 16 - Testing of packaging material - Part 1

Lecture 17 - Testing of packaging material - Part 2

Lecture 18 - Testing of packaging material - Part 3

Lecture 19 - Testing of packaging material - Part 4

Lecture 20 - Testing of package performance

Lecture 21 - Principles developing safe and protective packing

Lecture 22 - Transport worthiness test - Part 1

Lecture 23 - Transport worthiness test - Part 2

Lecture 24 - Transport worthiness test - Part 3

Lecture 25 - Safety aspects of food packaging

Lecture 26 - Packaging accessories and advances in packaging

Lecture 27 - Active packaging - Part 1

Lecture 28 - Active packaging - Part 2

Lecture 29 - MA and Aseptic packaging

Lecture 30 - Edible packaging - Part 1

Lecture 31 - Edible packaging - Part 2

Lecture 32 - Vacuum packing machine

Lecture 33 - CA and MA packing machine

Lecture 34 - Gas packing machine

Lecture 35 - Seal and shrink packing machine

Lecture 36 - Form fill sealing machine

Lecture 37 - Aseptic packaging systems

Lecture 38 - Retort pouches

Lecture 39 - Bottling machine - Part 1

Lecture 40 - Bottling machine - Part 2

Lecture 41 - Carton making machine

Lecture 42 - Package printing machines - Part 1

Lecture 43 - Package printing machines - Part 2

NPTEL : NOC:Vulnerability Studies: An Introduction (Multi-Disciplinary)

Co-ordinators : Prof. Pramod K Nayar

Lecture 1 - Introduction

Lecture 2 - Fragility

Lecture 3 - Resilience

Lecture 4 - Interpreting Vulnerability, precarity of work and Access Equality for Equal Opportunity - Part I

Lecture 5 - Interpreting Vulnerability, precarity of work and Access Equality for Equal Opportunity - Part II

Lecture 6 - Social Vulnerability and Group Vulnerability

Lecture 7 - Willed Vulnerability - Endurance Sports

Lecture 8 - Illness, Storytelling and Embodiment

Lecture 9 - Illness, Storytelling and Embodiment Reading - Audre Lordeâ€™s : The Cancer Journals

Lecture 10 - Group Discussion - Vulnerable Bodies

Lecture 11 - The Aesthetics of Vulnerability - I

Lecture 12 - The Aesthetics of Vulnerability - II Traumatic Materialism

Lecture 13 - The Aesthetics of Vulnerability - III Melodrama

Lecture 14 - Vulnerability Aesthetics The Sublime

Lecture 15 - The Aesthetics of Vulnerability - Discussion

Lecture 16 - Biopolitics, biopower and vulnerability - I

Lecture 17 - Biopolitics, biopower and vulnerability - II

Lecture 18 - Pandemics and Biopolitics

Lecture 19 - Biopolitics and vulnerable populations in Contemporary Literature

Lecture 20 - Discussion on Biopolitics

Lecture 21 - Ecoprecarity

Lecture 22 - Ecodystopia - I

Lecture 23 - Ecodystopia - II

Lecture 24 - Discussion on Ecoprecarity and Ecodystopias - I

Lecture 25 - Discussion on Ecoprecarity and Ecodystopias - II

Lecture 26 - Aging and Vulnerability in Literature

Lecture 27 - Aging and Vulnerability - 2

Lecture 28 - Aging and Vulnerability - 3

Lecture 29 - Discussion on Vulnerability and Aging - 1

Lecture 30 - Discussion on Vulnerability and Aging - 2

Lecture 31 - Childhood and Vulnerability - 1

Lecture 32 - Childhood and Vulnerability - 2

Lecture 33 - Childhood and Vulnerability - 3

Lecture 34 - Discussion on Childhood and Vulnerability - I

Lecture 35 - Discussion on Childhood and Vulnerability - II

Lecture 36 - Imperial Vulnerability - I

Lecture 37 - Imperial Vulnerability - II

Lecture 38 - Posthuman Vulnerability

Lecture 39 - Contemporary Genres of Resilience - The Graphic Novel - I

Lecture 40 - Contemporary Genres of Resilience - The Graphic Novel - II

NPTEL : NOC:Pulmonary Function Tests - Interpretation and Application in Clinical Practice (Multi-Disciplinary)

Co-ordinators : Multi-Faculty

Lecture 1 - Functional Anatomy of the Respiratory Tract

Lecture 2 - Mechanics of Respiration - Section 1

Lecture 3 - Mechanics of Respiration - Section 2

Lecture 4 - Ventilation, Perfusion Ventilation Perfusion Relationship

Lecture 5 - Essential Principles of Spirometer

Lecture 6 - Types of Pulmonary function tests

Lecture 7 - Obstructive Lung Diseases: Pathophysiology

Lecture 8 - Restrictive lung Diseases: Pathophysiology

Lecture 9 - Drug Effects on Pulmonary Function

Lecture 10 - Lung Disorders in Children

Lecture 11 - Assessment of Lung Functions in Children

Lecture 12 - Static and Dynamic lung function tests

Lecture 13 - Interpretation of Normal Pulmonary Function Tests

Lecture 14 - Indications for Pulmonary Function Testing

Lecture 15 - Obstructive Airway Diseases - Approach

Lecture 16 - Clinical Diagnosis of Restrictive Lung Disease - Part 1

Lecture 17 - Clinical Diagnosis of Restrictive Lung Disease - Part 1

Lecture 18 - Essential Criteria For a Good Pulmonary Function Testing

Lecture 19 - Interpretation of pulmonary function tests in Restrictive lung disease

Lecture 20 - Interpretation of PFT in Obstructive lung diseases

Lecture 21 - Diffusion Capacity of Lungs for Carbon Monoxide DLCO

Lecture 22 - Radiological assessment of obstructive and restrictive lung disorders

Lecture 23 - Laboratory Video - Pulmonary Function tests - Interpretation and application in clinical practice

NPTEL : NOC:Making Learning Engaging Through Interactive Games (Multi-Disciplinary)

Co-ordinators : Prof. Kartic Vaidyanathan

Lecture 1 - Need for interactive gamified learning

Lecture 2 - Learnings from the Master Class titled Confessions of a Converted Lectuer by Prof Eric Mazur

Lecture 3 - Understanding Play and its context in learning in 21st century

Lecture 4 - Benefits of Game Based Learning Scientific Evidences

Lecture 5 - Learning Stoichiometry calculations using board game Case Study

Lecture 6 - Benefits of Game Based Learning across age groups and subjects

Lecture 7 - Benefits of Puzzle Games

Lecture 8 - Game Based Learning Adoption by Countries Overview

Lecture 9 - Yu Kai Chow Psychology of gamification

Lecture 10 - Board Card Game Activity Game Sources

Lecture 11 - Board Card Game Mechanics Across Subjects - Part 1

Lecture 12 - Board Card Game Mechanics Across Subjects - Part 2

Lecture 13 - Growth Mindset Card Game Game Play of UNO adaptation

Lecture 14 - How Play Game Mechanics Enhance Learning in the UNO Game

Lecture 15 - Tools for bulding Board Card Games Snake and Ladder

Lecture 16 - Sample Games Created Inspired by Snake and Ladder Mechanics

Lecture 17 - Sample Card Games Created Across Subjects and Different Mechanics by Students

Lecture 18 - Tools for building Bingo Games

Lecture 19 - Puzzle Game Design Tools

Lecture 20 - Mentimeter

Lecture 21 - Quizizz

Lecture 22 - Wordwall

Lecture 23 - GIMKIT - Part 1

Lecture 24 - GIMKIT - Part 2

Lecture 25 - Raptivity Digital Tool Demo

Lecture 26 - Example scenarios of student and faculty created digital games across topic

Lecture 27 - Dr. Preeti AghalayamÃ¢'s - Experience narration with interactive games

Lecture 28 - Interview with Dr. Anuradha Prashant

Lecture 29 - Interview with Dr. Ankur Gera and her faculty team

Lecture 30 - Interview with Dr. GK SuraishKumar

Lecture 31 - Interview with Dr. Jacey Lynn Minoi

Lecture 32 - Interview with Dr. Kirupa Priyadarshini

Lecture 33 - Dave Eng Interviews Prof. Silviana Falcon Who has Written Lectuers and Play

NPTEL : NOC:Local Anaesthesia in Dentistry (Multi-Disciplinary)

Co-ordinators : Prof. Ramakrishna Shenoi, Prof. Sobhan Mishra, Prof. Kannan Balaraman, Prof. S. Jimson, Prof. Madan Mishra, Prof. Ashi Chug, Prof. Bhagawan Das Rai

Lecture 1 - The Drug; Pharmacology; Neurophysiology; Action of Vasoconstrictors - Part 1

Lecture 2 - The Drug; Pharmacology; Neurophysiology; Action of Vasoconstrictors - Part 2

Lecture 3 - Anatomic Considerations - Panel Discussion

Lecture 4 - Dosage and Clinical Actions of Specific Agents - Part 1

Lecture 5 - Dosage and Clinical Actions of Specific Agents - Part 2

Lecture 6 - Dosage and Clinical Actions of Specific Agents - Panel Discussion

Lecture 7 - Armamentarium - Part 1

Lecture 8 - Armamentarium - Part 2

Lecture 9 - Armamentarium - Part 3

Lecture 10 - Armamentarium - Part 4

Lecture 11 - Anatomic Considerations - Part 1

Lecture 12 - Anatomic Considerations - Part 2

Lecture 13 - Anatomic Considerations - Part 3

Lecture 14 - Anatomy of Trigeminal Nerve - Video Demonstration

Lecture 15 - Maxillary Injection Techniques - Part 1

Lecture 16 - Maxillary Injection Techniques - Part 2

Lecture 17 - Demonstration of Maxillary Injection Techniques

Lecture 18 - Maxillary Injection Techniques - Panel Discussion

Lecture 19 - Mandibular Injection Techniques - Part 1

Lecture 20 - Mandibular Injection Techniques - Part 2

Lecture 21 - Demonstration of Mandibular Injection Techniques

Lecture 22 - Mandibular Injection Techniques - Panel Discussion

Lecture 23 - Local Complications

Lecture 24 - Local Complications - Panel Discussion

Lecture 25 - Systemic Complications - Part 1

Lecture 26 - Systemic Complications - Part 2

Lecture 27 - Systemic Complications - Part 3

Lecture 28 - Demonstration of Systemic Complications

NPTEL : NOC:Intellectual Property Portfolio Management (Multi-Disciplinary)

Co-ordinators : Prof. Rajat Agrawal

Lecture 1 - Understanding Basics

Lecture 2 - Types of IPR and Their Applications

Lecture 3 - Innovation and Intellectual Property

Lecture 4 - Understanding Various Portfolios

Lecture 5 - International and National Scenario of IP

Lecture 6 - Patent Filing Strategies

Lecture 7 - Patent Filing

Lecture 8 - Country Selection for Patent Filing in Foreign Countries

Lecture 9 - International Filing - 1

Lecture 10 - International Filing - 2

Lecture 11 - Ranking Based Tier Strategies

Lecture 12 - Centralization of Patent Renewals and Translations

Lecture 13 - Budgeting for Patent Portfolio

Lecture 14 - Monitoring Based Countermeasures

Lecture 15 - General Cost Saving Measures

Lecture 16 - Various IP Strategies (Patent)

Lecture 17 - Various IP Strategies (Trademark, Copyright, Trade secret)

Lecture 18 - Understanding Elements of IP Strategies

Lecture 19 - IP Valuation Strategy

Lecture 20 - IP SWOT (Strength, Weaknesses, Opportunities, Threats) Analysis

Lecture 21 - Generations of Innovation

Lecture 22 - Idea Generation

Lecture 23 - Innovation Management

Lecture 24 - Innovation Management System ISO 56000

Lecture 25 - Strategies to Protect Innovation

Lecture 26 - Ensuring Quality and Extracting Values from the Patent Portfolio

Lecture 27 - International Patent Classification (IPC) System

Lecture 28 - Patent Landscape

Lecture 29 - Patent Infringement

Lecture 30 - PATENTSCOPE Search System

Lecture 31 - IP Incubating

Lecture 32 - IP Accounting

Lecture 33 - IP Commercialization

Lecture 34 - IP and Taxation

Lecture 35 - Lean IP Management

Lecture 36 - National IP Strategies

Lecture 37 - Significance of IP Audit

Lecture 38 - IP and SDGs

Lecture 39 - IP Enforcement

Lecture 40 - Case Studies

NPTEL : NOC:Teaching and Learning in Engineering (TALE) (Multi-Disciplinary)

Co-ordinators : Prof. N.J. Rao

Lecture 1 - Overview of TALE and Good Engineer

Lecture 2 - Education and Teaching

Lecture 3 - Learning, Instruction and Assessment

Lecture 4 - What is OBE?

Lecture 5 - Accreditation

Lecture 6 - Outcomes

Lecture 7 - Program Outcomes - 1

Lecture 8 - Program Outcomes - 2

Lecture 9 - Taxonomy of Learning

Lecture 10 - Cognitive Levels

Lecture 11 - General Categories of Knowledge

Lecture 12 - Metacognitive Knowledge

Lecture 13 - Vincenti Categories of Engineering Knowledge

Lecture 14 - Affective and Psychomotor Domains

Lecture 15 - Taxonomy Table

Lecture 16 - Course Outcomes - 1

Lecture 17 - Course Outcomes - 2

Lecture 18 - Course Outcomes - POs and PSOs

Lecture 19 - Attainment of COs

Lecture 20 - Attainment of POs and PSOs

NPTEL : NOC:Teaching and Learning in General Programs (Multi-Disciplinary)

Co-ordinators : Prof. N.J. Rao

Lecture 1 - Teaching and Learning in General Programs (TALG)

Lecture 2 - Education and Teaching

Lecture 3 - Learning, Assessment and Instruction

Lecture 4 - Outcome Based Education (OBE)

Lecture 5 - Accreditation

Lecture 6 - Program Outcomes

Lecture 7 - POs and PSOs

Lecture 8 - Taxonomy of Learning: Cognitive Levels - 1

Lecture 9 - Taxonomy of Learning: Cognitive Levels - 2

Lecture 10 - Taxonomy of Learning: Knowledge Categories

Lecture 11 - Taxonomy of Learning: Metacognitive Knowledge

Lecture 12 - Affective Domain

Lecture 13 - Psychomotor Domain

Lecture 14 - Taxonomy Tables

Lecture 15 - Course Outcomes - 1

Lecture 16 - Course Outcomes - 2

Lecture 17 - Tagging the Course Outcomes

Lecture 18 - Attainment of Course Outcomes

Lecture 19 - Attainment of POs and PSOs

NPTEL : NOC:TALE 2 - Course Design and Instruction of Engineering Courses (Multi-Disciplinary)

Co-ordinators : Prof K Rajani Kanth

Lecture 1 - Engineering Programs, NBA Accreditation and Engineering Courses

Lecture 2 - Course Design

Lecture 3 - ISD and ADDIE

Lecture 4 - Analysis Phase - 1

Lecture 5 - Analysis Phase - 2

Lecture 6 - Design Phase

Lecture 7 - Technology and Targets

Lecture 8 - Assessment Pattern and Assessment Instruments

Lecture 9 - Item Banks

Lecture 10 - Development Phase

Lecture 11 - Instruction Material and Learning Material

Lecture 12 - Implement Phase - 1

Lecture 13 - Implement Phase - 2

Lecture 14 - Evaluate Phase

Lecture 15 - Course Exit Survey

Lecture 16 - Evaluating Laboratories and Electives

Lecture 17 - Exit Surveys for Projects

Lecture 18 - Summary Feedback

Lecture 19 - Instruction: An Overview

Lecture 20 - Instructional Situations

Lecture 21 - How Brains Learn - 1

Lecture 22 - How Brains Learn - 2

Lecture 23 - How Brains Learn - 3

Lecture 24 - Instructional Components - 1

Lecture 25 - Instructional Components - 2

Lecture 26 - Merrillâ€™s Principles of Learning

Lecture 27 - ID based on Merrillâ€™s Principles

Lecture 28 - Direct Approach to Instruction

Lecture 29 - Project Based Approach to Instruction

Lecture 30 - Problem Based Approach to Instruction

Lecture 31 - Experiential Approach to Instruction

Lecture 32 - Simulation Approach to Instruction

Lecture 33 - Instruction for Design

Lecture 34 - Instruction for Metacognitive Learning

Lecture 35 - So, what should a teacher do?

NPTEL : NOC:NBA Accreditation and Teaching Learning in Engineering (NATE) (Multi-Disciplinary)

Co-ordinators : Prof. N J Rao, Prof. K. Rajanikanth

Lecture 1 - NATE

Lecture 2 - NBA Accreditation

Lecture 3 - Outcome Based Education

Lecture 4 - Self Assessment Report

Lecture 5 - Education, Teaching, Learning, Instruction, and Assessment

Lecture 6 - PEOs and POs (1-5)

Lecture 7 - POs (6-9)

Lecture 8 - POs (10-12)

Lecture 9 - PSOs

Lecture 10 - Taxonomy of Learning

Lecture 11 - Cognitive Processes - 1

Lecture 12 - Cognitive Processes - 2

Lecture 13 - Categories of Knowledge - 1

Lecture 14 - Categories of Knowledge - 2

Lecture 15 - Taxonomy Table

Lecture 16 - Affective and Psychomotor Domains

Lecture 17 - Course Outcomes - 1

Lecture 18 - Course Outcomes - 2

Lecture 19 - Tagging Course Outcomes

Lecture 20 - Computing Attainment of COs

Lecture 21 - Computing PO and PSO Attainment

Lecture 22 - Course Design Component of Teaching as per Finkâ€™s Model

Lecture 23 - ISD and ADDIE Models

Lecture 24 - ADDIE - Analysis Phase 1

Lecture 25 - ADDIE - Analysis Phase 2

Lecture 26 - ADDIE - Design Phase

Lecture 27 - Technology for Assessment; Setting Targets

Lecture 28 - Assessment Plan and Assessment Instruments

Lecture 29 - Item Banks

Lecture 30 - ADDIE- Development Phase

Lecture 31 - ADDIE - Implement Phase 1

Lecture 32 - ADDIE - Implement Phase 2

Lecture 33 - Exit Surveys - 1

Lecture 34 - Exit Surveys - 2

Lecture 35 - ADDIE - Evaluate Phase

Lecture 36 - Instruction An Overview

Lecture 37 - Instructional Situations

Lecture 38 - How Brains Learn

Lecture 39 - Instructional Components

Lecture 40 - Principles of Instruction Design

Lecture 41 - Direct Instruction - 1

Lecture 42 - Direct Instruction - 2

Lecture 43 - Project Based Approach to Instruction

Lecture 44 - Problem Based Approach to Instruction

Lecture 45 - Instruction for Design thinking

Lecture 46 - Simulation Approach to Instruction

Lecture 47 - Instruction for Metacognitive Learning

Lecture 48 - So, What Should the teacher do?

Lecture 49 - NBA Criterion 1 Vision, Mission, PEOs - 1

Lecture 50 - NBA Criterion 1 Vision, Mission, PEOs - 2

Lecture 51 - NBA Criterion 2 Teaching-Learning Processes - 1

Lecture 52 - NBA Criterion 2 Teaching-Learning Processes - 2

Lecture 53 - NBA Criterion 3 COs and POs - 1

Lecture 54 - NBA Criterion 3 COs and POs - 2

Lecture 55 - NBA Criterion 4 Students' Performance

Lecture 56 - NBA Criterion 5 Faculty Information and Contributions

Lecture 57 - NBA Criterion 6 Facilities and Technical Support

Lecture 58 - NBA Criterion 7 Continuous Improvement

Lecture 59 - NBA Criterion 8 First Year Academics

Lecture 60 - NBA Criterion 9 Student Support Systems

Lecture 61 - NBA Criterion 10 Governance, Institutional Support and Financial Resources

Lecture 62 - Summary

NPTEL : NOC:Fundamentals of Ecology (Multi-Disciplinary)

Co-ordinators : Prof. Vishwesha Guttal, Prof. Kavita Isvaran, Prof. Kartik Shanker, Prof. Umesh Srinivasan, Prof. Maria Thaker, Prof. Saskya van Nouhuys

Lecture 1 - Fundamentals in Ecology

Lecture 2 - Evolutionary Ecology

Lecture 3 - How animals and plants sense and navigate the world

Lecture 4 - Accessing resources

Lecture 5 - Competing for resources

Lecture 6 - Movement ecology

Lecture 7 - Adaptations in predator-prey interactions

Lecture 8 - Social behaviour

Lecture 9 - Mating systems

Lecture 10 - Life history theory

Lecture 11 - General intro to population dynamics

Lecture 12 - Math Refresher

Lecture 13 - Density independent growth

Lecture 14 - Tutorial/Numerical Examples

Lecture 15 - Density dependent growth (Continuous time; logistic model)

Lecture 16 - Lotka-Volterra competition models

Lecture 17 - Competitive Exclusion and Coexistence

Lecture 18 - Summary and recap

Lecture 19 - Spatial population structure and dynamics

Lecture 20 - Metapopulation case study: butterflies

Lecture 21 - Study design - Part 1

Lecture 22 - Study design - Part 2

Lecture 23 - Study design - Part 3

Lecture 24 - Quantitative thinking - Part 1

Lecture 25 - Quantitative thinking - Part 2

Lecture 26 - Introduction

Lecture 27 - Conditions and resources

Lecture 28 - Fundamental and realised niches

Lecture 29 - Distribution of communities

Lecture 30 - Community assembly

Lecture 31 - Introduction to species interactions

Lecture 32 - Competition

Lecture 33 - Predation

Lecture 34 - Parasitim and Infectious disease

Lecture 35 - Positive interspecies interactions

Lecture 36 - Food webs

Lecture 37 - Food web case study

Lecture 38 - Plant-animal interactions

Lecture 39 - Species invasion as an ecological process - I

Lecture 40 - Species invasion as an ecological process - II

Lecture 41 - Species concepts

Lecture 42 - Species diversity - 1

Lecture 43 - Species diversity - 2

Lecture 44 - Diversity and distribution

Lecture 45 - Relative abundance

Lecture 46 - Macroecology - 1

Lecture 47 - Macroecology - 2

Lecture 48 - Biogeography

Lecture 49 - The Changing Earth

Lecture 50 - Ecosystems and Biogeochemistry - 1

Lecture 51 - Ecosystems and Biogeochemistry - 2

Lecture 52 - Introduction to the Anthropocene

Lecture 53 - Climate change