NPTEL Video Course - Engineering Design - NOC:Innovation by Design

Subject Co-ordinator - Dr. B.K. Chakravarthy

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - The Seven Concerns
Lecture 2 - Design Thinking and Collaboration
Lecture 3 - Challenges to Innovation
Lecture 4 - Understanding Users
Lecture 5 - Arriving at Design Insights
Lecture 6 - Prototyping for User Feedback
Lecture 7 - 1st C The Cause
Lecture 8 - Crossing the First Pitfall
Lecture 9 - Trial and Error
Lecture 10 - User Feedback for Development
Lecture 11 - New users, new needs to meet
Lecture 12 - Knowing the Context
Lecture 13 - 2nd C The Context
Lecture 14 - The Basic Need
Lecture 15 - Ingenious Attempts
Lecture 16 - Further Insights
Lecture 17 - The Working Rig
Lecture 18 - Concepts generation
Lecture 19 - Experiencing the Product
Lecture 20 - Refinements
Lecture 21 - 3rd C - The Comprehension
Lecture 22 - Understanding Constraints
Lecture 23 - Positioning the Product
Lecture 24 - Exploring Possibilites
Lecture 25 - More Experiments
Lecture 26 - Understanding the Technology
Lecture 27 - At the 2nd Valley of Death
Lecture 28 - Finishing Touches
Lecture 29 - The Check

Lecture 30 - The Cause
Lecture 31 - The Product, the Users and the Context
Lecture 32 - The Prototyping
Lecture 33 - User needs
Lecture 34 - The Crucial Step Missed
Lecture 35 - 5th C The Conception
Lecture 36 - Synchronic Studies
Lecture 37 - One product, many problems
Lecture 38 - Concept Clusters
Lecture 39 - From idea to product
Lecture 40 - Prototyping
Lecture 41 - Materials and Technologies
Lecture 42 - Collaborative Efforts
Lecture 43 - 6th C - The Crafting
Lecture 44 - Recap
Lecture 45 - The Manufacturing Challenge
Lecture 46 - The User Feedback
Lecture 47 - The Iterative Process
Lecture 48 - 7th C - The Connection
Lecture 49 - The Seed for Innovation
Lecture 50 - Pinnacle for Innovation
Lecture 51 - The Innovation Timeline
Lecture 52 - The Innovation Champions
Lecture 53 - The Innovation Domains
Lecture 54 - The Innovation Templates
Lecture 55 - The Serial Innovation

NPTEL Video Course - Engineering Design - NOC:Understanding Design

Subject Co-ordinator - Dr. B.K. Chakravarthy

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - An Introduction to Design
Lecture 2 - The many notions of design
Lecture 3 - Design as a process and a product
Lecture 4 - The evolution of design
Lecture 5 - Design engages with many disciplines
Lecture 6 - Design is concerned with the user
Lecture 7 - Good design, bad design
Lecture 8 - Users and Contexts
Lecture 9 - Multiple users, differing contexts
Lecture 10 - Understanding user experience
Lecture 11 - Design for a meaningful impact
Lecture 12 - Design and Society
Lecture 13 - Community and Collaboration
Lecture 14 - Understanding Contexts
Lecture 15 - Knowledge and Access
Lecture 16 - Meeting Needs
Lecture 17 - Function, Context and Consequences
Lecture 18 - Design and Sustainability
Lecture 19 - The cost of looking the other way
Lecture 20 - Sustainability practices in daily life
Lecture 21 - The perspective of engineering
Lecture 22 - Understanding embodied energy
Lecture 23 - The userâ s role in sustainability
Lecture 24 - Framing the worldâ s future
Lecture 25 - Design and industry
Lecture 26 - Understanding varied user needs
Lecture 27 - Success through new materials and manufacturing
Lecture 28 - Pushing the boundaries of mass production
Lecture 29 - A Classic chair for all times

Lecture 30 - Breaking familiar assumptions
Lecture 31 - Design and Collaboration
Lecture 32 - Team work
Lecture 33 - Collaborating with unlikely partners
Lecture 34 - Principles of collaboration
Lecture 35 - Design thinking
Lecture 36 - Feedback and assessment
Lecture 37 - Innovation by Design
Lecture 38 - Facilitating the reach of a traditional craft
Lecture 39 - Pitfalls of innovation
Lecture 40 - The seven concerns of innovation
Lecture 41 - From a concern to a palki
Lecture 42 - A little design goes a long way

NPTEL Video Course - Engineering Design - NOC:Design, Technology and Innovation

Subject Co-ordinator - Dr. B.K. Chakravarthy

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Jaipur Foot - A classic innovation - Part 1
Lecture 2 - Jaipur Foot - A classic innovation - Part 2
Lecture 3 - User Centred Helmet Design - Part 1
Lecture 4 - User Centred Helmet Design - Part 2
Lecture 5 - Challenges of Reaching a Million Users - Part 1
Lecture 6 - Challenges of Reaching a Million Users - Part 2
Lecture 7 - Challenges of Reaching a Million Users - Part 3
Lecture 8 - Technology to Solution - Part 1
Lecture 9 - Technology to Solution - Part 2
Lecture 10 - A Collaborative Excellence - Part 1
Lecture 11 - A Collaborative Excellence - Part 2
Lecture 12 - Collaborative Innovation Methods - Part 1
Lecture 13 - Collaborative Innovation Methods - Part 2
Lecture 14 - Collaborative Innovation Methods - Part 3
Lecture 15 - Learnings from Grassroot Innovation - Part 1
Lecture 16 - Learnings from Grassroot Innovation - Part 2
Lecture 17 - Systemic Approach to Biomed Innovations - Part 1
Lecture 18 - Systemic Approach to Biomed Innovations - Part 2
Lecture 19 - Systemic Approach to Biomed Innovations - Part 3
Lecture 20 - Research to Innovation - Part 1
Lecture 21 - Research to Innovation - Part 2
Lecture 22 - Smartcane for the Blind - A Success Story - Part 1
Lecture 23 - Smartcane for the Blind - A Success Story - Part 2

NPTEL Video Course - Engineering Design - NOC:Understanding Ethnography

Subject Co-ordinator - Prof. Nina Sabnani

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction
Lecture 2 - Situating Ethnography
Lecture 3 - Engaging with the Other
Lecture 4 - Equality and Empathy
Lecture 5 - Notions of Reality
Lecture 6 - Objectivity and Subjectivity
Lecture 7 - Conclusion
Lecture 8 - Introduction
Lecture 9 - The Ethnographic Process
Lecture 10 - Ethnography
Lecture 11 - Fundamental Concepts
Lecture 12 - Fundamental Concepts (Continued...)
Lecture 13 - Conclusion
Lecture 14 - Introduction
Lecture 15 - The Research Question
Lecture 16 - Is Ethnography the Method?
Lecture 17 - Accessing Existing Knowledge
Lecture 18 - Designing Fieldwork
Lecture 19 - Case Studies
Lecture 20 - Case Studies
Lecture 21 - Case Studies
Lecture 22 - Case Studies
Lecture 23 - Conclusion
Lecture 24 - Access
Lecture 25 - Challenges of Access
Lecture 26 - Building Rapport
Lecture 27 - Gaining Trust
Lecture 28 - Limits to Access
Lecture 29 - Immersion

Lecture 30 - The Ethics of Engaging
Lecture 31 - Conclusion
Lecture 32 - Introduction
Lecture 33 - Types of Observation
Lecture 34 - (ALM) LxT 1
Lecture 35 - What to Observe
Lecture 36 - Participant Observation
Lecture 37 - Degrees of Participation
Lecture 38 - Ethnographic Records
Lecture 39 - Conclusion
Lecture 40 - Introduction
Lecture 41 - Forms of Interviews
Lecture 42 - (ALM) LxT 1
Lecture 43 - Characteristics of Interviews
Lecture 44 - Listening and Speaking
Lecture 45 - Reflexivity in Interviewing
Lecture 46 - Designing the Interview
Lecture 47 - Designing the Core Discussion - I
Lecture 48 - Designing the Core Discussion - II
Lecture 49 - Doing the Interview - I
Lecture 50 - Doing the Interview - II
Lecture 51 - Conclusion
Lecture 52 - Introduction
Lecture 53 - Researching THE Visual - I
Lecture 54 - Researching THE Visual - II
Lecture 55 - Researching WITH the Visual
Lecture 56 - Choosing the Visual Medium
Lecture 57 - Representation through Visuals
Lecture 58 - (ALM) LxT 1
Lecture 59 - Reflexivity in Visual Ethnography - I
Lecture 60 - Reflexivity in Visual Ethnography - II
Lecture 61 - Conclusion
Lecture 62 - Introduction
Lecture 63 - Designing Information for HIV-AIDS Affected Persons - Prof. Anirudha Joshi
Lecture 64 - A New Approach to Urban Housing - Prof. Uday Athavankar
Lecture 65 - Cognitive Ethnography - Prof. Sahana Murthy
Lecture 66 - Participative Design for Language Learning - Prof. Alka Hingorani
Lecture 67 - Conclusion

NPTEL Video Course - Engineering Design - NOC:Understanding Incubation and Entrepreneurship

Subject Co-ordinator - Dr. B.K. Chakravarthy

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Enterpreneurship
Lecture 2 - Hand holding for Entrepreneurship
Lecture 3 - Methodology for Innovation
Lecture 4 - Team Building
Lecture 5 - Problem Statement presentation
Lecture 6 - IDEAS program DSSE IITB
Lecture 7 - From Users to Customers: Solar Oven case-study
Lecture 8 - IITH Student projects: Customer Discovery
Lecture 9 - Healthcare and Innovation
Lecture 10 - Med-Tech success Stories
Lecture 11 - The Innovation Process
Lecture 12 - Human Centered Innovation
Lecture 13 - Creating User Experience Design
Lecture 14 - Humanizing Technology
Lecture 15 - Business Model Canvas
Lecture 16 - Introduction to SINE Incubator
Lecture 17 - Lean Model Canvas SINE
Lecture 18 - Start-up Success Story Atomberg
Lecture 19 - itic incubator IITH
Lecture 20 - Success stories of CfHE
Lecture 21 - Entrepreneurship: Plan to action
Lecture 22 - From Corporate to Entrepreneurship
Lecture 23 - Creative Ideation
Lecture 24 - Building Proof of Concept
Lecture 25 - Network Entrepreneurship
Lecture 26 - Start-up Project Presentation 1
Lecture 27 - Start-up Project Presentation 2

NPTEL Video Course - Engineering Design - Ergonomics for beginners: Industrial design perspective

Subject Co-ordinator - Prof. Debkumar Chakrabarti

Co-ordinating Institute - IIT - Guwahati

Lecture 1 - Introduction
Lecture 2 - Design today - human aid to lifestyle
Lecture 3 - Journey, fitting task to man
Lecture 4 - Domain, philosophy and objective
Lecture 5 - Mutual task comfort
Lecture 6 - Ergonomics/ human factors fundamentals
Lecture 7 - Physiology, (work physiology) and stress
Lecture 8 - Human body - structure and function, anthropometrics
Lecture 9 - Anthropometry
Lecture 10 - Static and synamic anthropometry
Lecture 11 - Anthropometry landmark
Lecture 12 - Anthropometry
Lecture 13 - Measuring techniques
Lecture 14 - Statistical treatment of data and
Lecture 15 - Human body-structure and function
Lecture 16 - Posture and job relation
Lecture 17 - Posture and body supportive devices
Lecture 18 - Chair characteristics
Lecture 19 - Vertical work surface
Lecture 20 - Horizontal work surface
Lecture 21 - Movement
Lecture 22 - Work Counter
Lecture 23 - Communication and cognitive issues
Lecture 24 - Psycho-social behaviour aspects,
Lecture 25 - Information processing and perception
Lecture 26 - Cognitive aspects and mental workload
Lecture 27 - Human error and risk perception
Lecture 28 - Visual performance
Lecture 29 - Visual displays
Lecture 30 - Environmental factors influencing
Lecture 31 - Ergonomics design methodology
Lecture 32 - Ergonomics criteria/check
Lecture 33 - Design process involving

Lecture 34 - Some checklist for task easiness
Lecture 35 - Occupational safety and stress at workplace
Lecture 36 - Workstation design
Lecture 37 - Furniture support
Lecture 38 - Vertical arm reach and relevant
Lecture 39 - Humanising design
Lecture 40 - Scope for exploration

NPTEL Video Course - Engineering Design - NOC:System Design for Sustainability

Subject Co-ordinator - Prof. Sharmistha Banerjee

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Sustainability and Sustainable Development - Understanding Un-sustainability and need for Sustair
Lecture 2 - Sustainability and Sustainable Development - Definitions
Lecture 3 - Sustainability and Sustainable Development - Pathway
Lecture 4 - Systems Approach to Design
Lecture 5 - Evolution of sustainability within Design
Lecture 6 - Diverse Approaches to Design for Sustainability - Part A
Lecture 7 - Diverse Approaches to Design for Sustainability - Part B
Lecture 8 - Relationship between approaches to Design for Sustainability and the application context
Lecture 9 - Product Life Cycle Design - Methods and Strategies
Lecture 10 - Product Life Cycle Assessment - Part A
Lecture 11 - Product Life Cycle Assessment - Part B
Lecture 12 - Life Cycle Assessment using Software
Lecture 13 - Design for Product Life Cycle
Lecture 14 - Product-Service System Design - Definition and Types
Lecture 15 - Sustainable Product-Service System Design - Definition and Examples
Lecture 16 - Sustainable Product-Service System Design - Examples
Lecture 17 - Khadi Movement as a precursor to PSS thinking
Lecture 18 - Sustainable Product-Service System Design - Transition Paths, Strategy and Challenges
Lecture 19 - Sustainable Product-Service System Design - Methods and Tools - Part A
Lecture 20 - Sustainable Product-Service System Design - Methods and Tools - Part B
Lecture 21 - Sustainable Product-Service System Design - Methods and Tools - Part C
Lecture 22 - Sustainable Product-Service System Design - Methods and Tools - Part D
Lecture 23 - Sustainable Product-Service System Design - Methods and Tools - Part E
Lecture 24 - Sustainable Product-Service System Design - Methods and Tools - Part F
Lecture 25 - Sustainable Product-Service System Design - Methods and Tools - Part G
Lecture 26 - Sustainable Product-Service System Design - Methods and Tools (Summary)
Lecture 27 - Sufficiency Economy Philosophy applied to Sustainable PSS Thinking
Lecture 28 - LCA of PSS
Lecture 29 - Sustainable Product-Service System Design Applied to Distributed Economy

Lecture 30 - Other Design for Sustainability Tools and approaches - Architecture
Lecture 31 - Other Design for Sustainability Tools and approaches - Agriculture
Lecture 32 - Other Design for Sustainability Tools and approaches - Cities and communities
Lecture 33 - Other Design for Sustainability Tools and approaches - Carbon Footprint
Lecture 34 - Co-design Session
Lecture 35 - Design for Sustainability - Engineering Design Criteria and Guidelines
Lecture 36 - Design for Sustainability - Engineering Design Criteria and Guidelines (ICS Toolkit)
Lecture 37 - Design for Sustainability - Concluding Lecture - Part A
Lecture 38 - Design for Sustainability - Concluding Lecture - Part B

NPTEL Video Course - Engineering Design - NOC:Product Design and Innovation

Subject Co-ordinator - Prof. Debayan Dhar, Prof.Swati Pal, Prof. Supradip Das

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Innovation
Lecture 2 - Design Inspired Innovation and User Innovation
Lecture 3 - Product Design - Part I
Lecture 4 - Product Design - Part II
Lecture 5 - Product Design - Part III
Lecture 6 - Introduction to User study and Problem and need Identification
Lecture 7 - Contextual Enquiry
Lecture 8 - Physical model
Lecture 9 - Creative Techniques and tools for concept generation, concept evaluation
Lecture 10 - Importance and Overview of Human Factors/Ergonomics in Product Design
Lecture 11 - Physical Ergonomics Principles and Issues (Part 1) - Anthropometry
Lecture 12 - Physical Ergonomics Principles and Issues (Part 2) - Biomechanics
Lecture 13 - Cognitive and Emotional aspects of Human Factors with respect to Product Design and Innovation
Lecture 14 - Tools and Techniques for Prototyping
Lecture 15 - Evaluation Tools and Techniques for User-Product Interaction

NPTEL Video Course - Engineering Design - NOC:Interaction Design

Subject Co-ordinator - Prof.Abhishek Shrivastava

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Basic Definitions and Concepts in Interaction Design
Lecture 2 - Relevance of goals in Interaction Design
Lecture 3 - System model, mental model, and representation model
Lecture 4 - Interaction Models and Interaction Paradigms
Lecture 5 - Interaction paradigm
Lecture 6 - Overview of Goal Directed Design Process
Lecture 7 - The Research phase in Goal Directed Design Process - Part 1
Lecture 8 - The Research phase in Goal Directed Design Process - Part 2
Lecture 9 - The Research phase in Goal Directed Design Process - Part 3
Lecture 10 - The Modeling phase in Goal Directed Design Process
Lecture 11 - The Requirement definition phase in Goal Directed Design Process - Part 1
Lecture 12 - The Requirement definition phase in Goal Directed Design Process - Part 2
Lecture 13 - The Framework definition and refinement phase in Goal Directed Design Process - Interaction fram
Lecture 14 - The Framework definition and refinement phase in Goal Directed Design Process - Visual design ar
Lecture 15 - Design evaluation and testing

NPTEL Video Course - Engineering Design - NOC:Ergonomics in Automotive Design

Subject Co-ordinator - Dr. Sougata Karmakar

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Automotive Ergonomics
Lecture 2 - Driver Information Acquisition and Processing
Lecture 3 - Anthropometric and Biomechanical Data in Automotive Design
Lecture 4 - Occupant Packaging
Lecture 5 - Principles of Control and Display Design
Lecture 6 - Usability evaluation of In-vehicle control and displays
Lecture 7 - Human Fields of View and Driver's Fields of View
Lecture 8 - Vehicle Entry and Exit
Lecture 9 - Driver Distraction and Driving Performance Measurement
Lecture 10 - Driver Workload Measurement
Lecture 11 - Virtual Ergonomics Evaluation Technique and its application in Automotive Design
Lecture 12 - Automotive Craftsmanship

NPTEL Video Course - Engineering Design - NOC:Ergonomics Workplace Analysis

Subject Co-ordinator - Prof. Urmi R. Salve

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Ergonomics Workplace Assessment - I
Lecture 2 - Introduction to Ergonomics Workplace Assessment - II
Lecture 3 - Task Analysis
Lecture 4 - Physiological Fundamentals of Workplace Evaluation
Lecture 5 - Biomechanics in Workplace Evaluation
Lecture 6 - Assessment of Physical Job Demand
Lecture 7 - Assessment of Physical and Cognitive Work with Psychophysiological Methods
Lecture 8 - Assessment of Physical and Cognitive Work with Psychophysiological Methods
Lecture 9 - Assessment of Mental Workload
Lecture 10 - Neuroergonomics in Work Evaluation
Lecture 11 - Psychosocial Aspect of Workplace Analysis
Lecture 12 - Assessment of Thermal Environment
Lecture 13 - Assessment of Visual Environment
Lecture 14 - Analysis of Auditory Environment and Noise Pollution

NPTEL Video Course - Engineering Design - NOC:Ergonomics Research Techniques

Subject Co-ordinator - Prof. Urmi R. Salve

Co-ordinating Institute - IIT - Guwahati

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course Introduction
Lecture 2 - Introduction
Lecture 3 - Plan for Identifiering av Belastnings faktorer (PLIBEL) method
Lecture 4 - Ducth Musculoskeletal Questionnaire (DMQ)
Lecture 5 - Musculoskeletal discomfort National Institute for Occupational Safety and Health (NIOSH)
Lecture 6 - Job Strain Index (JSI)
Lecture 7 - Ovako Working posture Analysis System (OWAS)
Lecture 8 - Rapid Upper Limb Analysis (RULA)
Lecture 9 - Rapid Entire Body Analysis (REBA)
Lecture 10 - Manual handling Assessment Charts (MAC)
Lecture 11 - Manual handling Assessment Charts (MAC)
Lecture 12 - Manual handling at work
Lecture 13 - Quick exposure checklist (QEC)
Lecture 14 - National Institute for Occupational Safety and Health (NIOSH) Lifting equation
Lecture 15 - Borg scale and Rodgers muscle fatigue analysis
Lecture 16 - Snook's Table
Lecture 17 - Lumber motion monitor (LMM)
Lecture 18 - Occupational repetitive action methods (OCRA) methods
Lecture 19 - Hand Arm Risk assessment Method (HARM)
Lecture 20 - Assessment of repetitive tasks of the upper limbs (ART)
Lecture 21 - Risk Assessment of Pushing and Pulling (RAPP)
Lecture 22 - Movement and Assistance of hospital patients (MAPO) method
Lecture 23 - Introduction
Lecture 24 - Observation, interviews and verbal protocol
Lecture 25 - Focus group
Lecture 26 - Hierarchical task analysis
Lecture 27 - Allocation of function methodology
Lecture 28 - Allocation of function methodology
Lecture 29 - Critical decision method

Lecture 30 - Systemic human error reduction and prediction approach (SHERPA)
Lecture 31 - Task analysis for error identification (TAFEI)
Lecture 32 - NASA task load index (TLX)
Lecture 33 - Multiple resource time sharing model
Lecture 34 - Critical path analysis
Lecture 35 - Situational awareness global assessment technique
Lecture 36 - Electroencephalogram (EEG)
Lecture 37 - Eye tracking
Lecture 38 - Human Error Assessment and Reduction Technique (HEART)
Lecture 39 - Cognitive Reliability and Error Analysis Method (CREAM)
Lecture 40 - Measurement of thermal conditions at workplaces
Lecture 41 - Mesasurement of different environmental factors - Part I
Lecture 42 - Mesasurement of different environmental factors - Part II

NPTEL Video Course - Engineering Design - NOC:Design Practices for Intelligent Product Design

Subject Co-ordinator - Prof. Bishakh Bhattacharya

Co-ordinating Institute - IIT - Kanpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Intelligent Product Design
Lecture 2 - An overview of Intelligent Product Design - Part 1
Lecture 3 - An overview of Intelligent Product Design - Part 2
Lecture 4 - Design Concept Generation: Axiomatic Design
Lecture 5 - Design Concept Generation TRIZ Principles - Part 1
Lecture 6 - Design Concept Generation TRIZ Principles - Part 2
Lecture 7 - Design Concept Generation TRIZ Principles - Part 3
Lecture 8 - New Product Development using TRIZ
Lecture 9 - An overview of materials for mechanical design
Lecture 10 - A Brief Discussion of Design Process
Lecture 11 - Ashby Chart for material Selection
Lecture 12 - Shape Factor and aesthetic parameters for material selection
Lecture 13 - Selection of Structures for Intelligent Design
Lecture 14 - Overview of Mechanisms for Physical Intelligence - Part 1
Lecture 15 - Overview of Mechanisms for Physical Intelligence - Part 2
Lecture 16 - Introduction to Sensors
Lecture 17 - Overview of Traditional Sensors - Part 1
Lecture 18 - Overview of Optical Sensors - Part 2
Lecture 19 - Overview of Smart Sensors - Part 3
Lecture 20 - Introduction to Actuators
Lecture 21 - High Precision Actuators
Lecture 22 - Introduction to Control Systems
Lecture 23 - Electro-Mechanical Systems and their Representations
Lecture 24 - Design of Control System
Lecture 25 - Root Locus Method
Lecture 26 - Design of Lead Compensator
Lecture 27 - Microcontrollers and Microprocessors
Lecture 28 - Bio-inspired Design
Lecture 29 - Case Study 1: Smart Bipennate Actuator

Lecture 30 - Case Study 2: Pipe Health Monitoring Robot
Lecture 31 - Case Study 3: Intelligent Buoy for River Health Monitoring
Lecture 32 - Case Study 4: Substation Inspection Robot

NPTEL Video Course - Engineering Design - NOC:Geographic Information System

Subject Co-ordinator - Prof. Bharath H Aithal

Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to GIS
Lecture 2 - Introduction (Continued...)
Lecture 3 - Introduction (Continued...)
Lecture 4 - Introduction (Continued...)
Lecture 5 - Introduction (Continued...)
Lecture 6 - Real World to Digital World Through GIS
Lecture 7 - Real World to Digital World Through GIS (Continued...)
Lecture 8 - Real World to Digital World Through GIS (Continued...)
Lecture 9 - GIS Data (Continued...)
Lecture 10 - Real World to Digital World Through GIS (Continued...)
Lecture 11 - Representing the Real World
Lecture 12 - Representing the Real World (Continued...)
Lecture 13 - Representing the Real World (Continued...)
Lecture 14 - Representing the Real World in Surface Models (Continued...)
Lecture 15 - Representing the Real World (Continued...)
Lecture 16 - Quering and Georeferencing
Lecture 17 - Elevation, Relative and Discrete Referencing
Lecture 18 - Coordinate Systems
Lecture 19 - Maps and Numbering
Lecture 20 - Map Projections
Lecture 21 - Data Quality and Measures
Lecture 22 - Positional Accuracy and Source of Errors
Lecture 23 - Classification Accuracy and Pixel Errors
Lecture 24 - Spatial Data Editing and Transformations
Lecture 25 - Map Display and Visualization in GIS
Lecture 26 - Introduction to GPS
Lecture 27 - GPS
Lecture 28 - GPS errors and DGPS
Lecture 29 - GNSS and Applications

Lecture 30 - Introduction to QGIS
Lecture 31 - Introduction to database
Lecture 32 - DataBase Management System - Introduction
Lecture 33 - DataBase Management System - (Continued...)
Lecture 34 - DBMS models
Lecture 35 - Normalization forms
Lecture 36 - Creating and Maintaining a database
Lecture 37 - Spatial Query using SQL - Introduction
Lecture 38 - Spatial analysis
Lecture 39 - Spatial analysis (Continued...)
Lecture 40 - Basic Editing
Lecture 41 - Introduction to Remote Sensing
Lecture 42 - Basic spatial analysis
Lecture 43 - Basic spatial analysis
Lecture 44 - Advanced spatial analysis
Lecture 45 - Advanced spatial analysis
Lecture 46 - Introduction to QGIS and Data Import
Lecture 47 - QGIS Plugins
Lecture 48 - Georeferencing an Image
Lecture 49 - Creating Vector Features
Lecture 50 - Vector Functions and Querying
Lecture 51 - Data Acquisition and Raster Functions - I
Lecture 52 - Data Acquisition and Raster Functions - II
Lecture 53 - Map composition
Lecture 54 - Bhuvan geoportal and Google earth
Lecture 55 - Introduction to R - Part I
Lecture 56 - Introduction to R - Part II
Lecture 57 - Open Source GIS Softwares
Lecture 58 - Open Source GIS softwares
Lecture 59 - PROS and CONS of open source
Lecture 60 - GIS Data Standards
Lecture 61 - Open Geospatial Consortium (OGC)
Lecture 62 - National Spatial Data Infrastructure (NSDI)
Lecture 63 - Introduction to Web GIS and Geoserver
Lecture 64 - Geoserver - Raster and SLD Integration

NPTEL Video Course - Engineering Design - Principles of Engineering System Design

Subject Co-ordinator - Dr. T. Asokan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to system Design
Lecture 2 - Engineering systems Classification & examples
Lecture 3 - Modern System design processes
Lecture 4 - Six functions of design process
Lecture 5 - Tools for enabling creative development
Lecture 6 - Team Development
Lecture 7 - System Requirement Analysis
Lecture 8 - Originating Requirements
Lecture 9 - Functional Architecture Development
Lecture 10 - Functional Decomposition
Lecture 11 - Functional Decomposition
Lecture 12 - Physical Architecture Development
Lecture 13 - Implementing Fault Tolerance in Physical Architecture
Lecture 14 - Operational Architecture Development - Part I
Lecture 15 - Operational Architecture Development - Part II
Lecture 16 - Interface architecture Development
Lecture 17 - Interface standards and Design process
Lecture 18 - Integration and qualification
Lecture 19 - Qualification planning and methods
Lecture 20 - System Design Example
Lecture 21 - System Design Examples
Lecture 22 - System Design Examples (Continued...)
Lecture 23 - Graphical Modelling Techniques
Lecture 24 - Process modeling
Lecture 25 - Behavior modeling
Lecture 26 - Graphical Modelling Techniques (Continued...)
Lecture 27 - System modeling and simulation
Lecture 28 - Bondgraph modeling of Dyanamic systems
Lecture 29 - Decision making in System Design

Lecture 30 - Decision making in System Design (Continued...)

NPTEL Video Course - Engineering Design - Vehicle Dynamics

Subject Co-ordinator - Dr. R. Krishnakumar

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Vehicle Dynamics
Lecture 2 - Longitudinal Dynamics
Lecture 3 - Vehicle Load Distribution - Acceleration and Braking
Lecture 4 - Brake Force Distribution, Braking Efficiency and Braking Distance
Lecture 5 - Tractor - Semi Trailer
Lecture 6 - Tire Mechanics - An Introduction
Lecture 7 - Mechanical Properties of Rubber
Lecture 8 - Slip, Grip and Rolling Resistance
Lecture 9 - Tire Construction and Force Development
Lecture 10 - Contact Patch and Contact Pressure Distribution
Lecture 11 - Tire Brush Model
Lecture 12 - Lateral Force Generation
Lecture 13 - Ply Steer and Conicity - Part 1
Lecture 14 - Ply Steer and Conicity - Part 2
Lecture 15 - Tire Models - Magic Formula
Lecture 16 - Classification of Tyre Models and Combined Slip
Lecture 17 - Lateral Dynamics - An Introduction
Lecture 18 - Lateral Dynamics - Bicycle Model
Lecture 19 - Lateral Dynamics - Stability and Steering Conditions
Lecture 20 - Understeer Gradient and State Space Approach
Lecture 21 - Handling Response of a Vehicle
Lecture 22 - Mimuro Plot for Lateral Transient Response - Part 1
Lecture 23 - Mimuro Plot for Lateral Transient Response - Part 2
Lecture 24 - Parameters affecting vehicle handling characteristics
Lecture 25 - Subjective and Objective Evaluation of Vehicle Handling - Part 1
Lecture 26 - Subjective and Objective Evaluation of Vehicle Handling - Part 2
Lecture 27 - Subjective and Objective Evaluation of Vehicle Handling and Rollover P
Lecture 28 - Rollover Prevention (Continued...) and Vertical Dynamics
Lecture 29 - Vertical Dynamics - An Introduction

Lecture 30 - Vertical Dynamics - Quarter Car Model
Lecture 31 - Noise, Vibration and Harshness - Random Processes
Lecture 32 - Random Process and Conclusion (Continued...)

NPTEL Video Course - Engineering Design - NOC:Control Systems

Subject Co-ordinator - Prof. C.S.Shankar Ram

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Control Systems - Part 1
Lecture 2 - Introduction to Control Systems - Part 2
Lecture 3 - Overview of Feedback Control Systems - Part 1
Lecture 4 - Overview of Feedback Control Systems - Part 2
Lecture 5 - Mathematical Preliminaries - Part 1
Lecture 6 - Mathematical Preliminaries - Part 2
Lecture 7 - Transfer Function - Part 1
Lecture 8 - Transfer Function - Part 2
Lecture 9 - System Response - Part 1
Lecture 10 - System Response - Part 2
Lecture 11 - BIBO Stability - Part 1
Lecture 12 - BIBO Stability - Part 2
Lecture 13 - Effect of Zeros - Part 1
Lecture 14 - Effect of Zeros - Part 2
Lecture 15 - Closed Loop System - Part 1
Lecture 16 - Closed Loop System - Part 2
Lecture 17 - First Order Systems - Part 1
Lecture 18 - First Order Systems - Part 2
Lecture 19 - Second Order Systems - Part 1
Lecture 20 - Second Order Systems - Part 2
Lecture 21 - Controllers - Part 1
Lecture 22 - Controllers - Part 2
Lecture 23 - Closed Loop Control - Part 1
Lecture 24 - Closed Loop Control - Part 2
Lecture 25 - Routh's Stabilty Criterion - Part 1
Lecture 26 - Routh's Stabilty Criterion - Part 2
Lecture 27 - Special Cases of Routh's Stability Criterion - Part 1
Lecture 28 - Special Cases of Routh's Stability Criterion - Part 2
Lecture 29 - Performance Specifications - Part 1

Lecture 30 - Performance Specifications - Part 2
Lecture 31 - Steady State Error Analysis - Part 1
Lecture 32 - Steady State Error Analysis - Part 2
Lecture 33 - Root Locus 1 - Part 1
Lecture 34 - Root Locus 1 - Part 2
Lecture 35 - Root Locus 2 - Part 1
Lecture 36 - Root Locus 2 - Part 2
Lecture 37 - Root Locus 3 - Part 1
Lecture 38 - Root Locus 3 - Part 2
Lecture 39 - Root Locus 4 - Part 1
Lecture 40 - Root Locus 4 - Part 2
Lecture 41 - Case Study - Modelling - Part 1
Lecture 42 - Case Study - Modelling - Part 2
Lecture 43 - Case Study - Control Design - Part 1
Lecture 44 - Case Study - Control Design - Part 2
Lecture 45 - State Space Representation - Part 1
Lecture 46 - State Space Representation - Part 2
Lecture 47 - Frequency Response - Part 1
Lecture 48 - Frequency Response - Part 2
Lecture 49 - Bode Plot 1 - Part 1
Lecture 50 - Bode Plot 1 - Part 2
Lecture 51 - Bode Plot 2 - Part 1
Lecture 52 - Bode Plot 2 - Part 2
Lecture 53 - Bode Plot 3 - Part 1
Lecture 54 - Bode Plot 3 - Part 2
Lecture 55 - Bode Plot 4 - Part 1
Lecture 56 - Bode Plot 4 - Part 2
Lecture 57 - Nyquist Plot 1 - Part 1
Lecture 58 - Nyquist Plot 1 - Part 2
Lecture 59 - Nyquist Plot 2 - Part 1
Lecture 60 - Nyquist Plot 2 - Part 2
Lecture 61 - Nyquist Stability Criterion - Part 1
Lecture 62 - Nyquist Stability Criterion - Part 2
Lecture 63 - Relative Stability 1 - Part 1
Lecture 64 - Relative Stability 1 - Part 2
Lecture 65 - Relative Stability 2 - Part 1
Lecture 66 - Relative Stability 2 - Part 2
Lecture 67 - Lead Compensation - Part 1
Lecture 68 - Lead Compensation - Part 2

Lecture 69 - Lead Compensator Design - Part 1
Lecture 70 - Lead Compensator Design - Part 2
Lecture 71 - Lag and Lag-Lead Compensation - Part 1
Lecture 72 - Lag and Lag-Lead Compensation - Part 2

NPTEL Video Course - Engineering Design - NOC:Fundamentals of Automotive Systems

Subject Co-ordinator - Prof. C.S.Shankar Ram

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Course Overview and Classification of Internal Combustion Engines - Part 1
Lecture 2 - Course Overview and Classification of Internal Combustion Engines - Part 2
Lecture 3 - Engine Components - Part 1
Lecture 4 - Engine Components - Part 2
Lecture 5 - Operation of Four Stroke Engines - Part 1
Lecture 6 - Operation of Four Stroke Engines - Part 2
Lecture 7 - Two Stroke Engine and Engine Cycles - Part 1
Lecture 8 - Two Stroke Engine and Engine Cycles - Part 2
Lecture 9 - Otto Cycle and Diesel Cycle - Part 1
Lecture 10 - Otto Cycle and Diesel Cycle - Part 2
Lecture 11 - Dual Cycle and Engine Performance - Part 1
Lecture 12 - Dual Cycle and Engine Performance - Part 2
Lecture 13 - Engine Performance - Part 1
Lecture 14 - Engine Performance - Part 2
Lecture 15 - Supercharging and Combustion in SI Engines - Part 1
Lecture 16 - Supercharging and Combustion in SI Engines - Part 2
Lecture 17 - Knocking in SI Engines - Part 1
Lecture 18 - Knocking in SI Engines - Part 2
Lecture 19 - Combustion in CI Engines and Carburetion - Part 1
Lecture 20 - Combustion in CI Engines and Carburetion - Part 2
Lecture 21 - Fuel Introduction Systems - Part 1
Lecture 22 - Fuel Introduction Systems - Part 2
Lecture 23 - Analysis of Carburetor - Part 1
Lecture 24 - Analysis of Carburetor - Part 2
Lecture 25 - Engine Emissions - Part 1
Lecture 26 - Engine Emissions - Part 2
Lecture 27 - Emission Control Systems - Part 1
Lecture 28 - Emission Control Systems - Part 2
Lecture 29 - Automotive Powertrain - Part 1

Lecture 30 - Automotive Powertrain - Part 2
Lecture 31 - Automotive Clutch - Part 1
Lecture 32 - Automotive Clutch - Part 2
Lecture 33 - Transmission - Part 1
Lecture 34 - Transmission - Part 2
Lecture 35 - Powertrain Analysis - Part 1
Lecture 36 - Powertrain Analysis - Part 2
Lecture 37 - Powertrain Analysis 2 - Part 1
Lecture 38 - Powertrain Analysis 2 - Part 2
Lecture 39 - Transmission Matching - Part 1
Lecture 40 - Transmission Matching - Part 2
Lecture 41 - Brake System - Part 1
Lecture 42 - Brake System - Part 2
Lecture 43 - Components of a Brake System and Drum Brake - Part 1
Lecture 44 - Components of a Brake System and Drum Brake - Part 2
Lecture 45 - Disc Brake and Introduction to Hydraulic Brake - Part 1
Lecture 46 - Disc Brake and Introduction to Hydraulic Brake - Part 2
Lecture 47 - Hydraulic Brake System - Part 1
Lecture 48 - Hydraulic Brake System - Part 2
Lecture 49 - Air Brake System - Part 1
Lecture 50 - Air Brake System - Part 2
Lecture 51 - Antilock Brake System 1 - Part 1
Lecture 52 - Antilock Brake System 1 - Part 2
Lecture 53 - Antilock Brake System 2 - Part 1
Lecture 54 - Antilock Brake System 2 - Part 2
Lecture 55 - Braking Analysis - Part 1
Lecture 56 - Braking Analysis - Part 2
Lecture 57 - Steering System - Part 1
Lecture 58 - Steering System - Part 2
Lecture 59 - Manual Steering Systems - Part 1
Lecture 60 - Manual Steering Systems - Part 2
Lecture 61 - Power Steering and Kinematic Steering Analysis - Part 1
Lecture 62 - Power Steering and Kinematic Steering Analysis - Part 2
Lecture 63 - Wheel Alignment - Part 1
Lecture 64 - Wheel Alignment - Part 2
Lecture 65 - Introduction to Suspension System - Part 1
Lecture 66 - Introduction to Suspension System - Part 2
Lecture 67 - Shock Absorbers and Independent Suspension - Part 1
Lecture 68 - Shock Absorbers and Independent Suspension - Part 2

Lecture 69 - Dependent Suspension and Suspension Analysis - Part 1
Lecture 70 - Dependent Suspension and Suspension Analysis - Part 2
Lecture 71 - Introduction to Electric and Hybrid Powertrain - Part 1
Lecture 72 - Introduction to Electric and Hybrid Powertrain - Part 2
Lecture 73 - Tyres - Part 1
Lecture 74 - Tyres - Part 2

NPTEL Video Course - Engineering Design - NOC:Functional and Conceptual Design

Subject Co-ordinator - Dr. T Asokan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction
Lecture 2 - Birth and Growth of a Product
Lecture 3 - Types of Design
Lecture 4 - Stage-Gate and Spiral Design
Lecture 5 - Stages in New Product Development
Lecture 6 - Laboratory Exercise - 1
Lecture 7 - Reverse Engg. and Redesign
Lecture 8 - Technical Questioning and Mission Statement
Lecture 9 - Mission Statement- Examples
Lecture 10 - Laboratory Exercise - 2
Lecture 11 - Identifying Customer Needs
Lecture 12 - Customer Need Analysis
Lecture 13 - Product Specifications
Lecture 14 - Laboratory Exercise - 3
Lecture 15 - Need - Metric Matrix
Lecture 16 - Establishing Target Specifications
Lecture 17 - HoQ
Lecture 18 - Laboratory Exercise - 4
Lecture 19 - Functional Decomposition
Lecture 20 - FAST Method
Lecture 21 - Laboratory Exercise - 5
Lecture 22 - Function Structure (Flow Method)
Lecture 23 - Flow Method Examples
Lecture 24 - Laboratory Exercise - 6
Lecture 25 - Product and Portfolio Architecture
Lecture 26 - Portfolio Architecture Selection
Lecture 27 - Laboratory Exercise - 7
Lecture 28 - Product Architecture
Lecture 29 - Identification of Modules

Lecture 30 - Laboratory Exercise - 8
Lecture 31 - Concept Development
Lecture 32 - Intuitive Methods
Lecture 33 - Laboratory Exercise - 9
Lecture 34 - Logical Method- TRIZ
Lecture 35 - Concept Selection
Lecture 36 - Laboratory Exercise - 10
Lecture 37 - Concept Scoring
Lecture 38 - Laboratory Exercise - 11

NPTEL Video Course - Engineering Design - NOC:Introduction to Robotics

Subject Co-ordinator - Dr. Krishna Vasudevan, Dr. Balaraman Ravindran, Dr. T Asokan

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction
Lecture 2 - Evolution of Robotics
Lecture 3 - Kinematics- Coordinate transformations
Lecture 4 - Homogeneus Transformation Matrix
Lecture 5 - Industrial Robot- Kinematic Structures
Lecture 6 - Robot Architectures
Lecture 7 - Kinematic Parameters
Lecture 8 - DH Algorithm
Lecture 9 - DH Algorithm- Examples
Lecture 10 - Forward Kinematics
Lecture 11 - Forward Kinematics- Examples
Lecture 12 - Inverse Kinematics
Lecture 13 - Inverse Kinematics- Examples
Lecture 14 - Differential Relations
Lecture 15 - Manipulator Jacobian and Statics
Lecture 16 - Overview of Electric Actuators and Operational Needs
Lecture 17 - Principles of DC Motor Operation
Lecture 18 - DC Motor Equations and Principles of Control
Lecture 19 - DC Motor Control Regions and Principles of Power Electronics
Lecture 20 - Power Electronic Switching and Current Ripple
Lecture 21 - The H-Bridge and DC Motor Control Structure
Lecture 22 - The Brushless DC Machine
Lecture 23 - Control of the Brushless DC Motor
Lecture 24 - The PM Synchronous Motor (PMSM) and SPWM
Lecture 25 - Principles of PMSM Control
Lecture 26 - Encoders for Speed and Position Estimation
Lecture 27 - Stepper Motors
Lecture 28 - Introduction to Probabilistic Robotics.
Lecture 29 - Recursive State Estimation

Lecture 30 - Recursive State Estimation
Lecture 31 - Probability basics
Lecture 32 - Probability basics
Lecture 33 - Kalman Filter
Lecture 34 - Extended Kalman Filter
Lecture 35 - Particle Filter
Lecture 36 - Binary Bayes
Lecture 37 - Velocity Motion Model
Lecture 38 - Odometry Motion Model
Lecture 39 - Occupa Grid Mapping
Lecture 40 - Range Finder Measurement Model
Lecture 41 - Localization Taxonomy
Lecture 42 - Markov Localization
Lecture 43 - Path Planning

NPTEL Video Course - Engineering Design - NOC:Introduction to Graphic Design

Subject Co-ordinator - Prof. Mohammad Shahid, Prof. Saurav Khuttiya Deori

Co-ordinating Institute - IIT - Hyderabad

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to the Course and Course Structure
Lecture 2 - Understanding Graphic Design as a Field - 1
Lecture 3 - Understanding Graphic Design as a Field - 2
Lecture 4 - Visual Coherence and Various Facets of Graphic Design
Lecture 5 - Understanding Design Process and Approach
Lecture 6 - Introduction to Elements of Design
Lecture 7 - Understanding Line as an Element of Design
Lecture 8 - Understanding Shape as an Element of Design
Lecture 9 - Understanding Form as an Element of Design
Lecture 10 - Understanding Space as an Element of Design
Lecture 11 - Understanding Value and Texture as an Element of Design
Lecture 12 - Introduction Principles of Design
Lecture 13 - Introduction Principles of Design
Lecture 14 - Understanding Balance as a Principle of Design
Lecture 15 - Understanding Emphasis as a Principle of Design
Lecture 16 - Understanding Variety as a Principle of Design
Lecture 17 - Understanding Contrast as a Principle of Design
Lecture 18 - Understanding Repetition and Rhythm as a Principle of Design
Lecture 19 - Exploring Gestalt Principles
Lecture 20 - Understanding Closer
Lecture 21 - Understanding Similarity
Lecture 22 - Understanding Continuity
Lecture 23 - Proximity and Pragnanz - Part 1
Lecture 24 - Proximity and Pragnanz - Part 2
Lecture 25 - Introduction to Typography
Lecture 26 - Typography History
Lecture 27 - Type Classification
Lecture 28 - Type Construction
Lecture 29 - Typographic Principles

Lecture 30 - Environmental Typography
Lecture 31 - Introduction to Identity Design - Part 1
Lecture 32 - Introduction to Identity Design - Part 2
Lecture 33 - Brief about Branding and Visual Branding
Lecture 34 - Elements of Visual Branding
Lecture 35 - Types of Logo
Lecture 36 - Logo Design Proces - Part 1
Lecture 37 - Logo Design Proces - Part 2
Lecture 38 - Introduction to Print and Publication
Lecture 39 - Grid System
Lecture 40 - Print production Processes
Lecture 41 - Lino-cut Printing Process

NPTEL Video Course - Engineering Design - NOC:Augmenting Design Thinking with Human-Computer Interaction

Subject Co-ordinator - Prof. Sonal Atreya

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction
Lecture 2 - Design Thinking Phases - Empathy
Lecture 3 - Design Thinking Phases - Define
Lecture 4 - Design Thinking Phases - Deliver
Lecture 5 - Design Thinking Applications - Part 1
Lecture 6 - Design Thinking Applications - Part 2
Lecture 7 - Components of HCI
Lecture 8 - Components of HCI - Human Ergonomics
Lecture 9 - Interface and Interaction
Lecture 10 - Principles of HCI - Part 1
Lecture 11 - Principles of HCI - Part 2
Lecture 12 - Divergent and Convergent Thinking
Lecture 13 - Convergent Thinking - AEIOU Framework
Lecture 14 - Planning and Implementation of Divergent and Convergent Thinking
Lecture 15 - Divergent and Convergent Thinking (Continued...)
Lecture 16 - Idea Generation and Selection - Overview
Lecture 17 - Techniques for Idea Generation - Part 1
Lecture 18 - Techniques for Idea Generation - Part 2
Lecture 19 - Techniques for Idea Generation - Part 3
Lecture 20 - Methods of Idea Selection
Lecture 21 - Need Analysis and Design for Experience
Lecture 22 - Design for Experience and Storytelling
Lecture 23 - Stakeholder Mapping and Customer Journey Mapping
Lecture 24 - Empathy Mapping and Context Mapping
Lecture 25 - Universal Design
Lecture 26 - Design for Accessibility
Lecture 27 - Design Research Methods - Part 1
Lecture 28 - Design Research Methods - Part 2
Lecture 29 - Questionnaire Design

Lecture 30 - Data Analysis
Lecture 31 - Card Sorting, Thematic Analysis and Conceptual Model
Lecture 32 - Information Architecture
Lecture 33 - Design Elements and Principles
Lecture 34 - Colour Theory
Lecture 35 - Typography and Iconography
Lecture 36 - Controls and Menus
Lecture 37 - Visual Design Principles
Lecture 38 - Prototyping and Usability Testing
Lecture 39 - Case Study - Medical Bed
Lecture 40 - Case Study - Tourism Website

NPTEL Video Course - Engineering Design - NOC:Interior Design

Subject Co-ordinator - Prof. Smriti Saraswat

Co-ordinating Institute - IIT - Roorkee

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Interior Design: Definition; Understanding; History of Interior Design; Scope
Lecture 2 - Interior Design: Interior Decoration; and Interior Architecture
Lecture 3 - Interior Design Projects: Overview on Costing and Career
Lecture 4 - Interior Design: Case Studies and Examples
Lecture 5 - Summary and Discourse of Week 1
Lecture 6 - Principles and Elements of Interior Design â Understanding Composition
Lecture 7 - Space Making Elements
Lecture 8 - Trends, Concepts and Schemes in Lighting, Colour, Furnishing, Finishes
Lecture 9 - Interior Design: Drawings and Representation Techniques
Lecture 10 - Summary and Discourse of Week 2
Lecture 11 - Interior Design: Understanding varied spaces
Lecture 12 - Interior-Design-Finishes, Materials and Specifications
Lecture 13 - Interior Design: Space-Making Crafts; Space-Surface Crafts
Lecture 14 - Interior Design: Space-Making Crafts; Space-Making Elements; Inter-relationships
Lecture 15 - Summary and Discourse of Week 3
Lecture 16 - Interior Design: Materials - Timber
Lecture 17 - Interior Design: Materials - Stone
Lecture 18 - Interior Design: Materials - Tiles
Lecture 19 - Interior Design: Materials - Paints
Lecture 20 - Summary and Discourse of Week 4
Lecture 21 - Green Interiors: Introduction to Rating Systems; Examples
Lecture 22 - Green Interiors: Attributes â IAQ, IEQ, Furniture
Lecture 23 - Green Interiors: Physics of Light - Day Light, Artificial Light, Chemistry of Colours
Lecture 24 - Green Interiors: Policies and Incentives; Materials and Finishes
Lecture 25 - Summary and Discourse of Week 5
Lecture 26 - Interior Design Technology: Innovative trends and technologiesâ Tiny Houses, Origami
Lecture 27 - Interior Design Technology: Experimental Finishes and Materials; Joinery
Lecture 28 - Interior Design Tech: Visual Merchandising, Modularity, Portability, Foldability, DIY
Lecture 29 - Interior Design Technology: New Concepts - Installations, Decor

Lecture 30 - Summary and Discourse of Week 6
Lecture 31 - Professional Practice: Interior Services, Functional Importance
Lecture 32 - Professional Practice: Bye-laws, Supervision
Lecture 33 - Building Material Costing; BoQ; Market Exposure; Product Catalogues
Lecture 34 - Important Organisations, Institutes, Firms, Designers, Avenues of Pedagogy and Practice
Lecture 35 - Summary and Discourse of Week 7
Lecture 36 - Trans-Disciplinary Interventions: Craft-Design Explorations - I
Lecture 37 - Trans-Disciplinary Interventions: Craft-Design Explorations - II
Lecture 38 - Creative and Cultural Industries: Focus on Visual Art and Interior Design (Architecture)
Lecture 39 - Interior Design: Future Roadmap; Opportunities and Challenges
Lecture 40 - Summary and Discourse