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(Agriculture)**

Co-ordinators : Prof. Hari Niwas Mishra

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Lecture 22 - Neutralization, Dissolved Air Floatation

Lecture 23 - Coagulation

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Lecture 25 - Pre-aeration and other advanced primary treatment units

Lecture 26 - Bacterial Metabolism and Their Use in Wastewater

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- Lecture 32 - Backcross breeding through molecular marker - Part I
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- Lecture 36 - Types of Vectors used in Plant Transformation and Selectable Marker Gene
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- Lecture 47 - PCR Screening
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- Lecture 53 - Double Integration - Part I
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- Lecture 55 - Golden Rice, Bt Cotton, FLAVR SAVR
- Lecture 56 - Characterisation of OsGLP1 Gene from Rice - Part I
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- Lecture 58 - Seed Sterilisation and Transformation (Rice and Tobacco)

- Lecture 1 - Moldboard plow
- Lecture 2 - Forces acting on moldboard plow
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- Lecture 4 - Disk plow
- Lecture 5 - Disk Harrow
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- Lecture 7 - Numericals related to design of tractor drawn disk harrow
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- Lecture 9 - Design of spike tooth harrow
- Lecture 10 - Cultivator
- Lecture 11 - Forces and moments acting on the shank and frame of a cultivator
- Lecture 12 - Design of tractor drawn cultivator
- Lecture 13 - Rotavator
- Lecture 14 - Soil resistance and specific work of the rotavator
- Lecture 15 - Design of components of a rotavator
- Lecture 16 - Design of a tractor drawn rotavator
- Lecture 17 - Design of a tractor drawn rotavator (reversed mode)
- Lecture 18 - Combination tillage implements
- Lecture 19 - Draft and power requirement of combination tillage implements
- Lecture 20 - Design of a passive-passive combination tillage implement
- Lecture 21 - Design of an active-passive combination tillage implement
- Lecture 22 - Computation on design of active-passive tillage implement
- Lecture 23 - Performance parameters
- Lecture 24 - Performance parameters (Continued...)
- Lecture 25 - Tillage performance index
- Lecture 26 - Seed drill/planter
- Lecture 27 - Components of seed drill and its calibration
- Lecture 28 - Performance evaluation of metering unit and design of hopper
- Lecture 29 - Designs of fluted roller metering unit and ground wheel
- Lecture 30 - Design of single seed metering unit
- Lecture 31 - Designs of feed roll shaft, furrow openers and frame

- Lecture 32 - Design calculations for fluted roller metering unit and hopper
- Lecture 33 - Seed tube and furrow closer
- Lecture 34 - Seed flow sensing in a seed drill
- Lecture 35 - Design of drum seeder
- Lecture 36 - Design of multi-crop drum seeder
- Lecture 37 - Deciding the dimensions of a multi-crop dryland drum seeder
- Lecture 38 - Design of a remote controlled drum seeder for wetland
- Lecture 39 - Granular chemical applicators
- Lecture 40 - Liquid chemical applicators
- Lecture 41 - Low pressure liquid chemical applicators
- Lecture 42 - Selection of pumps for liquid chemical applicators
- Lecture 43 - Atomizers
- Lecture 44 - Performance evaluation of sprayers
- Lecture 45 - Droplet size determination
- Lecture 46 - Factors affecting droplet size
- Lecture 47 - Solar Energy operated unmanned sprayer
- Lecture 48 - Working principle of harvesters
- Lecture 49 - Components of harvesting equipment with shear cutting
- Lecture 50 - Geometry of knife section and model for estimating load causing failure of stem
- Lecture 51 - Design of a self-propelled vertical conveyor reaper
- Lecture 52 - Numericals related to cutting by impact and shear
- Lecture 53 - Design of an electric-vertical conveyor reaper (E-VCR)
- Lecture 54 - Power requirement and field performance of an electric vertical conveyor reaper
- Lecture 55 - Onion topper cum digger
- Lecture 56 - Classification, working principle and factors influencing performance of threshing equipment
- Lecture 57 - Power requirement of threshing equipment and design informations
- Lecture 58 - Performance parameter for evaluation of threshers
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Lecture 2 - Food Production and Processing Challenges

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Lecture 4 - Balanced Diets

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Lecture 7 - Physical Properties of Foods

Lecture 8 - Textural and Rheological Properties of Foods

Lecture 9 - Thermal Properties Relationships

Lecture 10 - Food Structure and Quality Relationships

Lecture 11 - Major Chemical and Biochemical Reactions in Foods

Lecture 12 - Oxidative Reactions in Foods

Lecture 13 - Hydrolytic Reactions in Foods

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Lecture 15 - Enzymatic processes in food

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Lecture 17 - Anatomy and Functions of Taste and Smell

Lecture 18 - Sensory Evaluation Methods

Lecture 19 - Psychophysics of Sensory Perception

Lecture 20 - Novel Techniques in Sensory Evaluation

Lecture 21 - Water and Ice

Lecture 22 - Sugars and Oligosaccharides

Lecture 23 - Starch, Cellulose and Pectin

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Lecture 9 - Equation of Continuity in Cylindrical and Spherical Coordinates

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Lecture 12 - Navier Stokes Equations

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Lecture 7 - Biochemistry of some beneficial traits

Lecture 8 - Food Fermentation

Lecture 9 - Starter culture

Lecture 10 - Interstitial beneficial bacteria (Probiotics)

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Lecture 12 - Contamination of foods (Biological Contaminations)

Lecture 13 - Contamination of foods (Physical and crosscontamination Contaminations)

Lecture 14 - Various stages of contamination of foods

Lecture 15 - Minimization of food contamination

Lecture 16 - Microbial growth characteristics

Lecture 17 - Nature of microbial growth in food

Lecture 18 - Factors affecting microbial growth (intrinsic factors)

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Lecture 23 - Spoilage of meat, poultry, egg and sea foods

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