

Lecture wise Breakup

Lectures		Contents
Week-1	Lecture-1	Concept and significance of crop protection chemicals: Worldwide & India, Global Market scenario, Industrial trends and scope of entrepreneurship.
	Lecture-2	Types of crop protection chemicals, Insecticide (Organo phosphates and Phosphothionates) : physical and chemical properties, mode of action, its uses and toxicity
	Lecture-3	Insecticide (Organochlorines & Carbamate): Types, physical and chemical properties, mode of action, its uses and toxicity
Week-2	Lecture-4	Insecticide (Amides, similar functions and Miscellaneous) : physical and chemical properties, mode of action, its uses and toxicity
	Lecture-5	Fungicide : physical and chemical properties, mode of action, its uses and toxicity
	Lecture-6	Herbicide : physical and chemical properties, mode of action, its uses and toxicity
Week-3	Lecture-7	Bio pesticide : Bacillus thuringiensis, NPV, Beauveria bassiana: , mode of action and uses
	Lecture-8	Botanical pesticide : Types, mode of action and uses
	Lecture-9	Other types of bio pesticide: Types, mode of action and uses
Week-4	Lecture-10	Synthesis processes of some Crop Protection Chemicals
	Lecture-11	Mass production of biopesticides : Trichoderma
	Lecture-12	Formulation: definition, objectives, process, product spectrum, classification, codes etc
Week-5	Lecture-13	Different types of formulant: Carriers/ diluents and surfactants, synergist, safeners, highlighting classification, properties, use etc
	Lecture--14	Different types of formulant: antioxidants, stabilizers and encapsulants highlighting classification, properties, use etc
	Lecture-15	Dusting Powders/ Dust Formulations (DP), Granules (GR), Water Dispersible Powders/Wettable powders (WDP/WP) type of formulation : with respect to composition, preparation, properties, application, advantages and disadvantages
Week-6	Lecture-16	Emulsifiable concentrates (EC), Ultra Low volume (ULV) type of formulation : with respect to composition, preparation, properties, application, advantages and disadvantages
	Lecture-17	Suspension Concentrates (SC), Suspoemulsions (SE), Soluble Concentrates (SL) type of formulation: with respect to composition, preparation, properties, application, advantages and disadvantages
	Lecture-18	Microcapsule suspension (CS), Oil Dispersion (OD), Microemulsions (ME) type of formulation with respect to composition, preparation, properties, application, advantages and disadvantages
Week-7	Lecture-19	Water Dispersible Granules /Wettable Granules (WDG/WG), Emulsion in water (EW), type of formulation with respect to composition, preparation, properties, application, advantages and disadvantages

	Lecture-20	Water Dispersible multiple emulsions, Tablets (TB), and Dispersion Concentrates (DC) type of formulation with respect to composition, preparation, properties, application, advantages and disadvantages
	Lecture-21	Other formulation for specific applications viz. Aerosols, Fogging formulations, Smoke generators, Baits, Soluble Powders (SP)
Week-8	Lecture-22	Interaction with Crop Protection Chemicals Industry
	Lecture-23	Analysis of Physical and chemical properties of formulations
	Lecture-24	Field application efficiency, pesticide residue analysis and soil quality assessment.
Week-9	Lecture-25	Calculation on formulation quantification for field application
	Lecture-26	Application equipment: Dusters, sprayers & type of nozzles
	Lecture-27	Equipment used in development of formulations, working principle and detail process flow- Air jet mill, Extruders, Granulators
Week-10	Lecture-28	Equipment used in development of formulations, working principle and detail process flow- Sand/ Bead mill, Fluid Bed Dryer, Spray Dryer etc.
	Lecture-29	Technological innovation in Crop Protection Chemicals formulation, Some new factors providing impetus to technological innovation
	Lecture-30	Benefits of technological innovations and intellectual property protection
Week-11	Lecture-31	Entrepreneurship with pesticide venture through start-ups, incubates, SMEs and large scale industry, Funding scope from Government, other agencies and private industry
	Lecture-32	Introduction, current trends in packaging, packaging material based on different types of formulation.
	Lecture-33	Packaging standards, labeling, Antidotes
Week-12	Lecture-34	Interaction with Crop Protection Chemicals Industry
	Lecture-35	Regulatory bodies for Crop Protection Chemicals (CIBRC, FASSAI)
	Lecture-36	Application for registration of Crop Protection Chemicals
Week-13	Lecture-37	Competent Authority for developing Crop Protection Chemicals standards (WHO/FAO/BIS), Standard Specifications for Crop Protection Chemicals Formulations
	Lecture-38	Quality Control, Quality Management System for Crop Protection Chemicals Industry
	Lecture-39	Regulatory Requirements for Crop Protection Chemicals Industry (Pollution control, Waste disposal)
Week-14	Lecture-40	Marketing aspect of Crop Protection Chemicals business
	Lecture-41	Marketing Strategy development for Crop Protection Chemicals business
	Lecture-42	Bankable Detail Project Report (DPR) for funding support

