

Scientist B - Agrometeorology

Name of the post	Subject	Syllabus
Scientist B - Agrometeorology	Agricultural Meteorology	<p>General Meteorology: Atmospheric layers, composition, and structure. Solar radiation laws (Planck's, Stefan-Boltzmann), energy balance, albedo, direct/diffuse radiation. Heat transfer (conduction, convection, radiation), latent/sensible heat, temperature variations. Atmospheric motion (forces, wind, pressure systems, cyclones). Atmospheric moisture (humidity, dew point, clouds, precipitation). Weather phenomena (fog, frost, thunderstorms, monsoons, droughts, floods). Agricultural Climatology: Weather elements and climate controls. Crop-weather relationships (temperature, photoperiodism, phenology). Heat units (degree days), thermal time, crop growing periods. Crop water requirements, evapotranspiration (ET). Micrometeorology: Atmosphere-surface interactions, boundary layer, heat/moisture/momentum transfer. Modification of microclimate for crops (e.g., windbreaks, mulches). Applied Agmet & Forecasting: Weather forecasting types and applications in agriculture. Drought and extreme weather impact/management (indices, crop planning). Air pollution and vegetation, forest fire meteorology. Climate change, global warming, and impacts on agriculture</p>
	Meteorology	<p>Atmospheric Structure: Composition, vertical divisions (troposphere, stratosphere), extent. Temperature & Heat Transfer: Solar/terrestrial radiation, conduction, convection, inversions, lapse rates, International Standard Atmosphere (ISA). Pressure & Wind: Barometric pressure, isobars, pressure gradient force, Coriolis effect, gradient wind, wind shear, altimetry (QNH, QFE). Humidity &</p>

		<p>Clouds: Water vapor, relative humidity, dew point, cloud formation, types, classification. Precipitation: Types (rain, snow, hail), development, relationship to clouds. Atmospheric Stability: Stability/instability, adiabatic processes (DALR, SALR). Advanced & Applied Topics Synoptic Meteorology: Air masses, fronts, pressure systems (highs, lows, troughs, ridges), weather forecasting. Severe Weather: Thunderstorms, tornadoes, hurricanes, microbursts. Aviation Meteorology: Flight hazards (icing, turbulence, wind shear, visibility), altimetry, weather briefing, operational impacts. Climatology: Climatic zones, general circulation, climate change. Instrumentation & Observation: Radiosondes, anemometers, barographs, satellite/radar tech. Numerical Weather Prediction (NWP): Computer modeling.</p>
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