BES – E – 501 Environmental Microbiology and Toxicology

UNIT – I

Environmental Microbiology: Introduction, Microorganisms in the environment, role of microbes in ecosystem, Air microbiology, Introduction, microorganisms in air, role of microbes in atmosphere.

UNIT – II

Soil microbiology: Introduction, microorganisms in soil, role of microbes in biogeochemical cycles (Oxygen, carbon-dioxide, Nitrogen, Sulphur and phosphorous). Water microbiology; introduction, microorganisms in water, Role of microbes in the water environment.

UNIT – II

Microbiological analysis, laminar air flow, autoclaving, preparation of culture media, microorganisms and diseases: epidemiology, modes of transmission, controls of communicable diseases, air-borne diseases (tuberculosis, chicken-pox), soil-borne diseases (tetanus and gas-gangrene). Anti-microbial agents and their significance.

UNIT – III

Water and food-borne diseases (Cholera, Typhoid, Amoebiasis), Contamination of food, microbial spoilage of food, Role of microbes in oil-pollution control and chemical pollution control, Ecological and public health impacts of raw sewage and domestic liquid discharge.

UNIT – IV

Toxicology – Definitions, Classification, Toxic chemicals in the environment. Mode of entry of toxic substance, Heavy metals toxicity, Epidemiological issues goiter, fluorosis, arsenic poisoning.

UNIT – V

Xenobiotics in the environment. Pesticides – Classification of pesticides, Bioaccumulation, Biotransformation, toxic effects of pesticides in the environment. Detoxification.