Code 16 : MAJOR SUBJECT GROUP – FISHERIES SCIENCE

(Subjects : 16.1 : Fisheries Sciences / Fish Hydrology / Fish Environment / Fish IT, 16.2 : Fisheries Resource Management / Fish Processing Management, 16.3 : Inland Aquaculture / Mariculture / Freshwater culture, 16.4 : Fish Processing Technology, 16.5 : Aquatic / Fish Biology / Fish Physio. & biochem, 16.6 : Fish Microbiology / Fish Pathology / Aquatic Animal Health Mgt. 16.7 : Fisheries Extension, 16.8 : Aquatic Env. Management, 16.9 : Fish Post – Harvest Technology, 16.10 : Fish Genetics / Breeding / Biotechnology, 16.11 : Fish Nutrition & Feed Tech., 16.12 : Fish Business Management / Fish. Economics)

UNIT – I : Fishery resources and management. Classification and taxonomical characteristics of cultivablevfisheries, crustaceans and molluscs. Fresh water, brackish water and marine fishery resources of India, marine fisheries of the world. Estuarine, lacustrine, brackish water and pond ecosystem. Population dynamics, fish stock, abundance methods and analysis. Conservation and management of fishery resources. Fisheries legislations and law of the Seas. Impact of over exploitation and climate change on fisheries resources.

UNIT – II : Fish aquaculture. Reproduction and breeding behaviour in fishes and shellfishes, brood stock improvement, maturity and fecundity studies. Induced spawning methods and seed production, natural fish seed collection and rearing methods. Types of eggs and development of larval stages of fin fishes and shellfishes. Preparation and management of fresh water and brackish water fishponds. Cultivable species identification, introduction of exotic fishes in India. Culture methods: Pen and cage culture practices, crap and shrimp hatchery management, basic aspects of biotechnology in relation to fisheries.

UNIT – III : Ecology of water bodies. Important limnological, oceanographical and biological parameters in relation to fisheries of lotic and lentic waters, biological productivity and its impact on fisheries. Environmental impact assessment on fisheries in lentic and lotic waters. Biological parameters including energy flow, community ecology and aquatic association, biodiversity and its conservation, aquatic pollution and its managemen.

UNIT – IV : Harvest and post harvest technology. Common crafts and gears used for fish capture. Boat building material and demerits of wood, steel, aluminum, Ferro cement and FRP. Different types of fibres and netting materials and their characteristics, preservation of netting, parts of a trammel net, purse – scene, gill net and tuna long line. Food chemistry, fundamentals of microbiology. General methods of fish preservation and fishery by products. Canning and packaging techniques, processing and product development techniques.

UNIT – V : Fisheries economics, extension & statistics. Introduction to fishery economics and concepts of cooperative, marketing and banking management. Supply v / s demand economics of hatchery management and fish culture operations. Profit maximization. Problems in estimating costs and returns in fisheries. WTO agreements in Fisheries sector, intellectual property rights (IPR) and international fish trade; Fisheries extension methods. Training and education needs in fisheries. Communication concepts, Modern tools of fishery extension education, participatory rural appraisal (PRA), Rapid rural appraisal (RRA), role of women in fisheries; Basics of statistics in fisheries and computer science.