

Lecture Schedule

Department of Fisheries Extension, Economics and Statistics (Code-FEES)

S.No.	Course	Page No.
1.	Statistical Methods	2
2.	Fisheries Economics	3
3.	Fisheries Policy and Law	4
4.	Fisheries Co-operatives and Marketing	5
5.	Fisheries Business Management and Entrepreneurship Development	6
6.	Information and Communication Technology	7
7.	Fisheries Extension Education	8
8.	Communication Skills and personality development	9
9.	Swimming	10
10.	Physical Education, First Aid & Yoga Practices	11
11.	Environmental Studies and Disaster Management	12 - 13

(1) - FEES-111, Statistical Methods

(1) - FEES-111, Statistical Methods		
Theory		
S.No.	Topic	Class
1	Definition of statistics, Concepts of population, sample, Census and sample surveys,	2
2	Classification of data, frequency and cumulative frequency table. Diagrammatic and graphical representation of data - bar diagrams, pie-diagram, histogram, frequency polygon, frequency curve and Ogives.	5
3	Important measures of central tendency - arithmetic mean median and mode.	3
4	Relative merits and demerits of these measures. Important measures of dispersion, Range, Mean Deviation, Variance and Standard Deviation. Relative merits and demerits of these measures.	4
5	Coefficient of variation; Normal Curve, Concepts of Skewness and kurtosis.	3
6	Introduction to statistical inference, general principles of testing of hypothesis, types of errors.	2
7	Tests of significance based on SND, t, and Chi-square distributions. Bivariate data, scatter diagram,	3
8	simple linear correlation, measure and properties, linear regression, equation and fitting; relation between correlation and regression, applications of linear regression in fisheries.	5
Total		27
Practical		
1	Construction of questionnaires and schedules.	2
2	Diagrams and frequency graphs.	2
3	Calculation of arithmetic mean, median, mode, range, mean deviation, variance, standard deviation.	8
4	Test of hypothesis based on SND, t, and chi-square.	4
5	Computation of Simple correlation and regression.	2
Total		18

(2) - FEES-211, Fisheries Economics

(2) - FEES-211, Fisheries Economics		
Theory		
S.No.	Topic	Class
1	Introduction to fisheries economics, micro and macroeconomics, positive and normative economics, farm-firm relationships, production Contribution of fisheries sector to the economic development of the country.	5
2	Micro-economics: theories of demand, supply; market – equilibrium price, consumption, utility, Consumer surplus. Elasticity – price, income, cross, application of elasticity in fisheries managerial decision.	5
3	Farm production economics – production functions in capture and culture fisheries; Costs and returns –breakeven analysis of fish production system;	3
4	concepts of externalities and social cost;factors of production, marginal cost and return, law of diminishing marginal return, returns to scale, economies of scale and scope, revenue, profit maximization, measurement of technological change, farm planning and budgeting. Significance or importance of marginal cost.	8
5	Macro-economics: Introduction to national income, accounting, measurement and determinants of national income, contribution of fisheries to GNP and employment; Globalization: dimensions and driving Forces.	4
6	Introduction to GATT and WTO. WTO Framework – Key Subjects - Agreement on Sanitary and Phytosanitary Measures (SPS), Seafood Export Regulations; Non-Tariff Barriers (NTBs) and Agreement on Anti-Dumping Procedures. Intellectual Property Rights (IPR) and different forms.	8
Total		33
Practical		
1	Demand and supply functions of fish market – determination of equilibrium price for fish and fisheries products, calculation of price, income and cross elasticities.	3
2	Production function – production with one or two variable inputs.	2
3	Shifting demand and surplus curve and its importance in fish price.	2
4	Economic analysis on cost, return and breakeven of any two production units like fish farm / shrimp farm / seed production unit /fish processing plant / export unit.	5
Total		12

(3) - FEES-321, Fisheries Policy and Law

(3) - FEES-321, Fisheries Policy and Law		
	Theory	
S.No.	Topic	Class
1	Introduction to public administration, principles of organization and management of public enterprise.	1
2	Central and State responsibilities for fisheries development, organizational set up of fisheries administration at the Centre and state levels.	1
3	Present relevance of past fisheries policies and recent policies in fisheries sector.	2
4	Functions and powers of functionaries of department of fisheries,	1
5	Different central and state level fisheries institutions.	1
6	Role of Central and State Government in the regulatory activities of Aquaculture and fisheries.	1
7	Implementation of community based resource management plans.	1
8	Historical review of fisheries development and management in India and world.	1
9	International agencies / organizations for promotion of fisheries worldwide.	1
10	Fisheries legislation: Overview of fisheries and aquaculture legislations in India. Indian Fisheries Act, 1897.	2
11	International environmental legislation and its impact on fisheries.	2
12	Laws relating to conservation and management of fishery resources in marine and inland sectors.	1
13	land reforms. Land reforms legislation as applicable to aquaculture.	1
14	Judicial judgments relating to Aquaculture.	1
15	Objectives, functions and authority of fishery regulatory agencies like Coastal Regulatory Zone (CRZ) and Aquaculture Authority of India.	1
16	Brackish water aquaculture act, Marine fisheries policy,	1
17	Laws relating to fish products and marketing.	1
18	International Law of the Seas and international commissions on fisheries and their impact.	2
Total		22

(4) - FEES-311, Fisheries Co-operatives and Marketing

(4) - FEES-311, Fisheries Co-operatives and Marketing		
	Theory	
S.No.	Topic	Class
1	Principles and objectives of co-operation, co-operative movement in fisheries in India,	1
2	structure, functions, status and problems of fisheries co-operatives management in relation to resources,	1
3	production and marketing.	1
4	Role of credit for fisheries development,	1
5	credit requirements of fishers,	1
6	source and type of credit/finance, micro-credit, indigenous and institutional finance,	2
7	structure of institutional finance in fisheries;	1
8	returns, risk bearing ability and recovery in fisheries sector;	1
9	role of NABARD in fisheries development;	1
10	role of insurance in fish and shrimp farming and industry.	1
11	Basic accounting procedures, profit and loss account.	1
12	Introduction to marketing management; core marketing concepts: market structure, functions and types, marketing channels and supply chain,	1
13	marketing margins, marketing environment, marketing strategies, product development and product mix, consumer behavior and marketing research.	2
14	Fish markets and marketing in India, demand and supply of fish, market structure and price formation in marine and inland fish markets;	2
15	cold storage and other marketing infrastructure in India;	1
16	export markets and marketing of fish and fishery products;	1
17	Trade liberalization and fisheries markets.	1
18	Integrated marketing approach in fisheries.	1
19	Sea food export case study on product and market diversification- export and import policies (fisheries).	1
20	New product development and market segmentation. Export and import policies relevant to fisheries sector.	1
Total		23
	Practical	
1	Developing questionnaire and conducting market surveys, analysis of primary and secondary market data.	3
2	Exercises on equilibrium price for fish and fishery products;	1
3	estimation of demand and supply using simple regression.	1
4	Analysis of credit schemes of banks and the government.	1
5	Case studies of cooperatives.	2
6	Visit to co-operative societies,	1
7	commercial banks and fish markets and organizations dealing with marketing of fish and fishery products.	2
8	Pattern and Performance of India's Seafood Exports;	1
9	Case studies on product and market diversification.	2
10	Case studies on competitiveness of Indian fish and fish products.	2
Total		16

(5) - FEES-322, Fisheries Business Management and Entrepreneurship Development

Theory		
S.No.	Topic	Class
1	Concept of entrepreneurship;	2
2	entrepreneurial and managerial characteristics;	1
3	managing an enterprise;	1
4	motivation and entrepreneurship development;	1
5	importance of planning, monitoring, evaluation and follow up;	1
6	managing competition;	1
7	entrepreneurship development programs;	2
8	Generation, incubation and commercialization of ideas and innovations.	1
9	Government schemes and incentives for promotion of entrepreneurship.	2
10	Preparation of enterprise budget for integrated fish farming.	1
11	Fiscal and monetary policies and its impact on entrepreneurship.	1
12	Infrastructural and other financial requirement for fishery entrepreneurship Government policy on Small and Medium Enterprises (SMEs) / SSI's.	2
13	Venture capital. Contract farming and joint ventures, public- private partnerships.	3
14	Overview of fisheries inputs industry. Characteristics of Indian fisheries processing and export industry.	1
15	Introduction to fish business management- Concept of management, management process (planning, organising, staffing, leading and controlling), Organizational behaviour, human resource planning, new dimensions in fish business environment and policies.	3
16	Accounting procedures of fish business entity.	1
17	Emerging trends in fish production, processing, marketing and exports.	1
18	Assessing overall business environment in the Indian economy.	1
19	Overview of Indian social, political and economic systems and their decision making by individual entrepreneurs.	1
20	Globalisation and the emerging business /entrepreneurial environment.	1
21	Social Responsibility of Business.	1
Total		29

(6) - FEES-121, Information and Communication Technology		
Theory		
S.No.	Topic	Class
1	IT and its importance.	1
2	IT tools, IT-enabled services and their impact on society;	2
3	computer fundamentals;	2
4	hardware and software;	2
5	input and output devices;	2
6	word and character representation;	2
7	important ICT tools- computer, cell phone, internet, kisan call center, information kiosk, digital TV, interactive white board.	1
8	features of machine language, assembly language, high-level language and their advantages and disadvantages;	3
9	principles of programming- algorithms and flowcharts;	2
10	Operating systems (OS) definition, basic concepts, introduction to WINDOWS and LINUX Operating Systems;	2
11	Local area network (LAN), Wide area network(WAN), Internet and World Wide Web, HTML and IP;	2
12	Introduction to MS Office - Word, Excel, Power Point.	3
13	Audio visual aids - definition, advantages, classification and choice of A.V aids;	1
14	cone of experience and criteria for selection and evaluation of A.V aids;	1
15	video conferencing.	1
16	Communication process, Berlo' s model, feedback and barriers to communication	2
Total		29
Practical		
1	Exercises on binary number system, algorithm and flow chart;	2
2	MS Word;	1
3	MS Excel;	1
4	MS Power Point;	1
5	Internet applications:	1
6	Web Browsing, Creation and operation of Email account;	1
7	Analysis of fisheries data using MS Excel.	2
8	Handling of audio visual equipment.	2
9	Planning, preparation, presentation of posters, charts, overhead transparencies and slides.	4
10	Organization of an audio visual programme.	1
Total		16

(7) - FEES-221, Fisheries Extension Education

(7) - FEES-221, Fisheries Extension Education		
Theory		
S.No.	Topic	Class
1	Introduction to extension education and fisheries extension - concepts, objectives and principles; extension education, formal and informal education; History and role of fisheries extension in fisheries development.	5
2	Fisheries extension methods- individual, group and mass contact methods and their effectiveness, factors influencing their selection and use;	4
3	characteristics of technology, transfer of technology process; important TOT programs in fisheries; role of NGOs and SHGs in fisheries; Fisheries co-management;	3
4	Adoption and diffusion of innovations, adoption and diffusion process, adopter categories and barriers in diffusion of fisheries innovations;	4
5	Extension program planning and evaluation - steps and importance;	2
6	participatory planning process. Basic concepts in rural sociology and psychology and their relevance in fisheries extension;	3
7	social change, social control, social problems and conflicts in fisheries; gender issues in fisheries;	2
8	theories of learning, learning experience, learning situation	2
Total		25
Practical		
1	Collection of socio-economic data from fishing villages; study of social issues/	2
2	problems through participatory and rapid rural appraisal techniques,	3
3	stake holders analysis and needs assessment; assessment of development needs of community and role of formal and non –	3
4	governmental organizations through stakeholder analysis; case studies on social/gender issues	3
5	and social conflicts in fisheries. Case studies on extension programs and Success stories. Practical exercises on conducting fish farmers meet.	4
Total		15

(8) - FEES-222, Communication Skills and Personality Development		
	Practical	
1	Structural and functional grammar;	2
2	meaning and process of communication,	1
3	verbal and non- verbal communication;	1
4	listening and note taking,	1
5	writing skills,	2
6	oral presentation skills;	1
7	field diary and lab record;	1
8	indexing, footnote and bibliographic procedures.	2
9	Reading and comprehension of general and technical articles,	2
10	précis writing, summarizing, abstracting;	1
11	individual and group presentations, impromptu presentation,	1
12	public speaking; Group discussion.	2
13	Organizing seminars and conferences.	1
Total		18

(9) - CNC-111, Swimming

(9) - CNC-111, Swimming		
Practical		
S.No.	Topic	Class
1	History, hazards in water and safety precautions; pool maintenance and water quality control.	2
2	Learning swimming, understanding and practice of ducking the head, kicking action, holding breath under water and various strokes (free style, breast stroke, butterfly, back stroke);	15
3	competitive swimming-relays and medleys, lap time practice, swimming and floating aids and their uses; diving-styles of diving, rules, regulations and precautions.	5
4	Methods of life saving in water;	3
5	Boating, canoeing and sailing: types, maintenance, skill development, rules and regulations and practice.	4
Total		29

(10) - CNC-121, Physical Education, First Aid & Yoga Practices		
Practical		
1	Introduction to physical education: definition, objectives, scope, history, development and importance; physical culture; Meaning and importance of Physical Fitness and Wellness; Physical fitness components -speed, strength, endurance, power, flexibility, agility, coordination and balance;	1
2	Warming up - General & Specific & its Physiological basis; Test and measurement in physical education;	1
3	Training and Coaching - Meaning & Concept; Methods of Training; aerobic and an aerobic exercises;	1
4	Calisthenics, weight training, circuit training, interval training, Fartlek training; Effects of Exercise on Muscular, Respiratory, Circulatory & Digestive systems;	1
5	Balanced Diet and Nutrition: Effects of Diet on Performance; Physiological changes due to ageing and role of regular exercise on ageing process;	1
6	Personality, its dimensions and types; Role of sports in personality development;	1
7	Motivation and Achievements in Sports; Learning and Theories of learning; Adolescent Problems & its Management; Posture; Postural Deformities; Exercises for good posture.	2
8	Yoga; Introduction to - Asana, Pranayama, Meditation and Yogic Kriyas; Role of yoga in sports; Governance of sport in India; Important national sporting events;	3
9	Awards in Sports; History, latest rules, measurements of playfield, specifications of equipment, skill, technique, style and coaching of major games(Cricket, football, table Tennis, Badminton, Volleyball, Basketball, Kabaddi and Kho-Kho) and Athletics	3
10	Need and requirement of first aid. First Aid equipment and up keep. Handling and transport of injured traumatized persons. Emergency procedure for suffocation, demonstration of artificial respiration.	2
11	Treatment of injuries (wounds and bleeding)–methods of dressing and bandages; first-aid procedure for injured bones.	2
12	Handling unconsciousness; Treatment of burns and scalds. Emergency procedure for poisoning with special references to snakebite.	1
13	Injuries I accidents in fishing, fish processing factories, chemical laboratories and their treatments. Shock injuries to muscles and joints and treatments. Sports injuries and their treatments.	1
Total		20

(9) - ESDM-121, Environmental Studies and Disaster Management

Theory		
S.No.	Topic	Class
1	Multidisciplinary nature of environmental studies Definition, scope and importance Natural Resources: Renewable and non-renewable resources. Natural resources and associated problems.	2
2	Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forest and tribal people.	1
3	Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.	1
4	Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.	1
5	Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.	1
6	Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources. Case studies.	1
7	Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification. • Role of an individual in conservation of natural resources. • Equitable use of resources for sustainable lifestyles.	1
8	Ecosystems • Concept of an ecosystem. • Structure and function of an ecosystem.	1
9	•Producers, consumers and decomposers. • Energy flow in the ecosystem. • Ecological succession.	2
10	• Food chains, food webs and ecological pyramids. • Introduction, types, characteristic features, structure and function of the following ecosystem:- a. Forest ecosystem b. Grassland ecosystem c. Desert ecosystem Aquatic ecosystem (ponds, streams, lakes, rivers, oceans, estuaries)	3
11	Biodiversity and its conservation:- Introduction, definition, genetic, species & ecosystem diversity and bio geographical classification of India	2
12	Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values. Biodiversity at global, National and local levels, India as a mega-diversity nation. Hot-spot of biodiversity.	2
13	Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts. Endangered and endemic species of India.	1
14	Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.	1
15	Environmental Pollution: definition, cause, effects and control measures of:- a. Air pollution b. Water pollution c. Soil pollution d. Marine pollution e. Noise pollution f. Thermal pollution g. Nuclear hazards.	4
16	Solid Waste Management: causes, effects and control measures of urban and industrial wastes. Role of an individual in prevention of pollution. Pollution case studies.	2

17	Social Issues and the Environment: From Unsustainable to Sustainable development Urban problems related to energy. Water conservation, rain water harvesting, watershed management	1
18	Environmental ethics: Issues and possible solutions, climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, dyes.	1
19	Wasteland reclamation. Consumerism and waste products.	1
20	Environment Protection Act. Air (Prevention and Control of Pollution) Act. Water (Prevention and control of Pollution Act. Wildlife Protection Act Forest Conservation Act Issues involved in enforcement of environmental legislation. Public awareness.	2
21	Human Population and the Environment: population growth, variation among nations, population explosion, Family Welfare Program.	2
22	Environment and human health: Human Rights, Value Education, HIV/AIDS.	1
23	Women and Child Welfare. Role of Information Technology in Environment and human health. Case Studies.	2
24	Field work: Visit to a local area to document environmental assets river/forest/grassland/hill/mountain,	4
25	visit to a local polluted site- Urban/Rural/Industrial/Agricultural, study of common plants, insects, birds and study of simple ecosystems-pond, river, hill slopes, etc.	6
Total		46