First Call for Creating e-Learning Course Content under NAHEP-2,

Subproject- - "Investments in ICAR Leadership in Agricultural Higher Education"

Introduction

e-Learning is a learning system based on formalised teaching with the help of electronic resources. It is provided through electronic devices such as computers, tablets and even cellular phones that are connected to the internet. This makes it easy for users to learn anytime, anywhere with few, if any, restrictions. New technologies are changing the way learning is delivered and it has been found that visuals, apart from holding the attention of the student, are also retained by the brain for longer periods. e-Learning also enables educators to get a higher degree of coverage to communicate the message in a consistent way for their students. A learning management system (LMS) is a software application that is used to deliver eLearning. Instead of having the e-Learning content spread out over different hard drives and devices, LMS allows to store all of the eLearning materials in one location. Delivering the course through an LMS keeps the content centralized so that all the students have a single source of content, instructions and questions. Technology is the foundation, backbone, and catalyst of LMS. Technology provides endless opportunities for learning through apps, smartphones, videos, search engines, and other real-time information sources. This has grown into a medium with immense possibilities comprising of a world of skill improvement, enhancement of learning and understanding, and changing attitudes and behaviours in a period of time.

Background

The mandate of ICAR/DARE includes promotion and coordination of education in agriculture, agro-forestry, animal husbandry, fisheries, home science and allied sciences in the country. ICAR, through series of efforts over years strove and brought about uniformity in norms and standards in academics, governance and finance management, quality and relevance of education, and policies on human resource development in the country. ICAR is now embarking upon an ambitious step in further strengthening the National Agricultural Education System in the country through National Agricultural Higher Education Project (NAHEP) with financial assistance of the World Bank by investing on infrastructure, competency and commitment of faculty, and attracting talented students to agriculture.

The Project "**Investments in ICAR Leadership in Agricultural Higher Education"** is a Component-2 NAHEP project funded by the world bank. It belongs to the main priority area of strengthening of agricultural education system (ICAR and Agricultural Universities) in India. Its major aim is to strengthen the Agricultural Higher Education in India**.** The lead institute is ICAR-IASRI and the collaborating institutes are ICAR-NIAP and ICAR-NAARM. The major objectives of the project at ICAR-IASRI are as follows:

- To develop the ICT infrastructure as technical assistance to Agricultural Universities
- To develop digital information systems for agricultural education, data collection, analysis and dissemination;
- To develop and implement next-generation management systems covering information in regard to procurement to contract management and financial management areas

Under the first objective, establishment of e-learning/m-learning systems through MOOC/LMS system for participating AUs is a major activity. The main objectives of e-Learning activity are - The revision of existing UG e-courses, Development of e-courses for Masters and PhD courses, deployment of e-courses on MOOC/LMS platform and study on e-Learning for inclusiveness of all students.

First e-Learning Call

The first open call is meant for inviting the proposals from permanent teaching faculty at Agricultural Universities and ICAR deemed universities/ ICAR institutes with at-least 5 years of experience in teaching/ research for the development and review of e-Learning course content for master degree courses. For development of e-Learning course content, 2 mandatory courses from each M.Sc. discipline have been selected. The selected courses are mentioned in Annexure-I. The e- Learning material for these courses will be created under different Units. For each Unit, a Course Creator and two course Reviewers will be selected. The syllabus for the courses and the unit wise distribution is as per the prescribed PG curricula and syllabi of the Education Division, ICAR, New Delhi.

The Course Structure and format for preparing the eLearning content under the Course Units and the Honorarium part is given below.

The interested faculty can send their essential particulars along with the name of discipline, courses and units in which they are interested as Course Content Creator or Reviewer for creation of e-Learning courses in the Application Form attached as Annexure-II.

Course Structure and Format to be Adopted for Preparing eLearning Content

1. Course Name, Unit Name, Unit Instructor Name, University/College Name, Department Name

2. Lecture wise breakup of the Unit . (Around 10 Lectures)

3. **Lecture Structure:**

1. Objectives of the Lecture in bullets (Atleast 2).
2. Glossary of terms: 5-10 definitions of the main terms used in each Lecture.
3. e-Lecture: eLearning content of the Lecture containing the Text, Tables and labelled Pictures (The content should be more in bulleted form or small paragraphs rather than big paragraphs).
4. Questions/Answers: At least 5-10 Questions (MCQ's, True/False/ Fill Ups) with their options and correct answers.
5. At least 1 Assignment from each Lecture.
6. A power point presentation for each Lecture of the unit.
7. Animations/ Explanatory Video (if any)

4. **Format:**

1. The e-Learning content should be created in MS-Word using the Times New Roman font style
2. Title of Unit and Lectures should be Bold and in 14 pts font size.
3. The text should be written in 12 pts font size.
4. All topics under the Lecture should have a Bold Heading and a Section No.(1,2,3,...)
5. Subsections should be numbered as 1.1, 1.1.1 etc.

Table.1: Honorarium and Time Duration for the Content Creator and the Reviewers

	Unit Wise Breakup into Lectures	Lecture Wise Honorarium	Total Unit Honorarium	Time Duration
Course Content Creator	1 Unit = 10 Hours Approximately 10 Lectures	1500 Rs. per lecture	Rs 15000 per Unit	3 Months
Reviewer 1	1 Unit = 5 Hours	1500 Rs. per lecture	Rs 7500 per Unit	1 Month
Reviewer 2	1 Unit = 5 Hours	1500 Rs. per lecture	Rs 7500 per Unit	1 Month

Annexure -I

List of M.Sc. Courses Included in First Call

	2 Mandatory Courses Selected from each Discipline for the development of eLearning Content							
Check box		**Discipline-Group**	**Discipline**	**Code**		**COURSE TITLE**	**No of Units**	**Proposed Changes**
	1	Basic sciences						
		1	AGRICULTURAL CHEMICALS	AC	503	BASIC CHEMISTRY I	5	
				AC	504	BASIC CHEMISTRY II	5	
		2	BIOCHEMISTRY	BIOCHEM	501	BASIC BIOCHEMISTRY	4	
				BIOCHEM	502	INTERMEDIARY METABOLISM	4	
		3	CHEMISTRY	CHEM	502	THERMODYNAMICS	5	
				CHEM	503	CHEMICAL KINETICS AND SURFACE CHEMISTRY	5	
		4	MICROBIOLOGY	MICRO	501	PRINCIPLES OF MICROBIOLOGY	4	
				MICRO	502	MICROBIAL PHYSIOLOGY AND METABOLISM	4	
		5	PLANT PHYSIOLOGY	PP	504	HORMONAL REGULATION OF PLANT GROWTH AND DEVELOPMENT	6	
				PP	508	MORPHOGENESIS, TISSUE CULTURE AND TRANSFORMATION	6	

Check Box	2	Biotechnology & Bioinformatics	**Discipline**	**Code**		**COURSE TITLE**	**Units**	**Proposed Changes**
		1	PLANT MOLECULAR BIOLOGY & BIOTECHNOLOGY	MBB	501	PRINCIPLES OF BIOTECHNOLOGY	4	
				MBB	502	FUNDAMENTALS OF MOLECULAR BIOLOGY	4	
		2	ANIMAL BIOTECHNOLOGY	ABT	602	FUNDAMENTALS OF CELL & MOLECULAR BIOLOGY	4	
				ABT	604	ANIMAL CELL CULTURE: PRINCIPLES & APPLICATIONS	4	
		3	BIOINFORMATICS	BIF	501	INTRODUCTION TO BIOINFORMATICS	4	
				BIF	502	ADVANCED BIOINFORMATICS	4	

Check Box	3	Plant Sciences	**Discipline**	**Code**		**COURSE TITLE**	**Units**	**Proposed Changes**
		1	GENETICS AND PLANT BREEDING	GP	502	PRINCIPLES OF CYTOGENETICS	6	
				GP	504	PRINCIPLES OF QUANTITATIVE GENETICS	5	
		2	SEED SCIENCE AND TECHNOLOGY	SST	501	FLORAL BIOLOGY, SEED DEVELOPMENT & MATURATION	4	
				SST	502	PRINCIPLES OF SEED PRODUCTION	5	

Check Box	4	Physical Sciences	**Discipline**	**Code**		**COURSE TITLE**	**Units**	**Proposed Changes**
		1	AGRICULTURAL METEOROLOGY	AGM	501	FUNDAMENTALS OF METEOROLOGY AND CLIMATOLOGY	6	
				AGM	502	FUNDAMENTALS OF AGRICULTURAL METEOROLOGY	6	
		2	AGRICULTURAL PHYSICS	AP	501	FUNDAMENTALS OF SOIL PHYSICS	9	
				AP	502	FUNDAMENTALS OF METEOROLOGY AND CLIMATOLOGY	6	
		3	AGRONOMY	AGRON	501	MODERN CONCEPTS IN CROP PRODUCTION	5	
				AGRON	502	PRINCIPLES AND PRACTICES OF SOIL FERTILITY AND NUTRIENT MANAGEMENT	5	
		4	SOIL SCIENCE	SOILS	504	SOIL MINERALOGY, GENESIS, CLASSIFICATION AND SURVEY	6	
				SOILS	506	SOIL BIOLOGY AND BIOCHEMISTRY	6	

Check Box	5	Plant Protection	Discipline	Code		COURSE TITLE	Units	Proposed changes
		1	ENTOMOLOGY	ENT	501	INSECT MORPHOLOGY	4	
				ENT	502	INSECT ANATOMY, PHYSIOLOGY AND NUTRITION	4	
		2	NEMATOLOGY	NEMA	501	PRINCIPLES OF NEMATOLOGY	5	
				NEMA	503	STRUCTURAL ORGANIZATION OF NEMATODES	5	
		3	PLANT PATHOLOGY	PL PATH	501	MYCOLOGY	4	
				PL PATH	502	PLANT VIROLOGY	6	

Check Box	6	Social Sciences	Discipline	Code		COURSE TITLE	Units	Proposed Changes
		1	AGRI-BUSINESS MANAGEMENT	ABM	513	COMPUTERS FOR MANAGERS	4	
					514	MANAGEMENT INFORMATION SYSTEM	5	
		2	AGRICULTURAL ECONOMICS	AG ECON	501	MICRO ECONOMIC THEORY AND APPLICATIONS	4	
				AG ECON	502	MACRO ECONOMICS AND POLICY	5	
		3	AGRICULTURAL EXTENSION	EXT	501	DEVELOPMENT PERSPECTIVES OF EXTENSION EDUCATION	4	
				EXT	502	DEVELOPMENT COMMUNICATION AND INFORMATION MANAGEMENT	4	

Check Box	7	Statistical Sciences	**Discipline**	**Code**		**COURSE TITLE**	**Units**	**Proposed Changes**
		1	STATISTICS / AGRICULTURAL STATISTICS	STAT	551	MATHEMATICAL METHODS - I	4	
				STAT	552	MATHEMATICAL METHODS - II	4	
		2	BIO-STATISTICS	BST	551	MATHEMATICAL METHODS - I	4	
				BST	552	MATHEMATICAL METHODS - II	4	
		3	COMPUTER APPLICATION	MCA	551	MATHEMATICAL FOUNDATIONS IN COMPUTER SCIENCE	6	
				MCA	552	NUMERICAL ANALYSIS	6	

Check Box	8	Horticultural Sciences	**Discipline**	**Code**		**COURSE TITLE**	**Units**	**Proposed changes**
		1	FRUIT SCIENCE	FSC	501	TROPICAL AND DRY LAND FRUIT PRODUCTION	5	
				FSC	502	SUBTROPICAL AND TEMPERATE FRUIT PRODUCTION	5	
		2	VEGETABLE SCIENCE	VSC	501	PRODUCTION TECHNOLOGY OF COOL SEASON VEGETABLE CROPS	5	
				VSC	502	PRODUCTION TECHNOLOGY OF WARM SEASON VEGETABLE CROPS	5	
		3	FLORICULTURE AND LANDSCAPE ARCHITECTURE	FLA	501	BREEDING OF FLOWER CROPS AND ORNAMENTAL PLANTS	5	
				FLA	502	PRODUCTION TECHNOLOGY OF CUT FLOWERS	5	
		4	PLANTATION, SPICES, MEDICINAL & AROMATIC CROPS	PSMA	501	PRODUCTION OF PLANTATION CROPS	5	
				PSMA	502	PRODUCTION TECHNOLOGY OF SPICE CROPS	5	

Check Box	9	Forestry	**Discipline**	**Code**		**COURSE TITLE**	**Units**	**Proposed Changes**
		1	FORESTRY	FOR	501	SILVICULTURE	3	
				FOR	502	FOREST BIOMETRY	3	

Check Box	10	Agricultural Engineering & Technology	**Discipline**	**Code**		**COURSE TITLE**	**Units**	**Proposed Changes**
		1	FARM MACHINERY AND POWER ENGINEERING	FMPE	501	DESIGN OF FARM POWER AND MACHINERY SYSTEMS	5	
				FMPE	502	SOIL DYNAMICS IN TILLAGE AND TRACTION	4	
		2	PROCESSING AND FOOD ENGINEERING	PFE	501	TRANSPORT PHENOMENA IN FOOD PROCESSING	4	
				PFE	502	ENGINEERING PROPERTIES OF FOOD MATERIALS	4	
		3	SOIL AND WATER ENGINEERING	SWE	501	WATERSHED HYDROLOGY	5	
				SWE	502	DESIGN OF FARM IRRIGATION SYSTEMS	5	

Check Box	11	Home Science	**Discipline**	**Code**		**COURSE TITLE**	**Units**	**Proposed Changes**
		1	FOODS & NUTRITION	FN	501	ADVANCED FOOD SCIENCE	4	
				FN	502	ADVANCED NUTRITION	4	
		2	FAMILY RESOURCE MANAGEMENT	FRM	501	APPROACHES TO RESOURCE MANAGEMENT	4	
				FRM	502	CONSUMER ERGONOMICS	4	
		3	HUMAN DEVELOPMENT AND FAMILY STUDIES	HDFS	501	THEORIES OF HUMAN DEVELOPMENT & BEHAVIOUR	4	
				HDFS	502	ADVANCES IN LIFE SPAN DEVELOPMENT	4	
		4	TEXTILE AND APPAREL DESIGNING	TAD	501	FIBRE CHEMISTRY	4	
				TAD	502	TEXTILE QUALITY ANALYSIS	4	
		5	HOME SCIENCE EXTENSION & COMMUNICATION MANAGEMENT	HECM	501	GLOBAL EXTENSION SYSTEMS	4	
				HECM	502	TRAINING AND HUMAN RESOURCE DEVELOPMENT	4	

Check Box	12	Basic Veterinary Subjects	**Discipline**	**Code**		**COURSE TITLE**	**Units**	**Proposed Changes**
		1	VETERINARY ANATOMY & HISTOLOGY	VAN	601	COMPARATIVE OSTEOLOGY AND ARTHROLOGY	5	
				VAN	602	COMPARATIVE SPLANCHNOLOGY	5	
		2	VETERINARY & ANIMAL HUSBANDRY EXTENSION	AHE	601	FUNDAMENTALS OF VETERINARY AND ANIMAL HUSBANDRY EXTENSION	4	
				AHE	602	COMMUNICATION FOR LIVESTOCK DEVELOPMENT	3	
		3	VETERINARY BIOCHEMISTRY	VBC	601	CHEMISTRY OF ANIMAL CELL	3	
				VBC	603	APPLICATIONS OF GENOMICS AND PROTEOMICS IN MOLECULAR BIOLOGY	3	
		4	VETERINARY PHYSIOLOGY	VPY	601	PHYSIOLOGY OF DIGESTION	5	
				VPY	602	CARDIOVASCULAR AND RESPIRATORY PHYSIOLOGY	5	

Check Box	13	Veterinary Para-clinical Subjects	Discipline	Code		COURSE TITLE	Units	Proposed Changes
		1	VETERINARY MICROBIOLOGY	VMC	601	BACTERIOLOGY – I	3	
				VMC	602	BACTERIOLOGY – II	3	
		2	VETERINARY PARASITOLOGY	VPA	606	CLINICAL PARASITOLOGY	3	
				VPA	607	TRENDS IN CONTROL OF LIVESTOCK AND POULTRY PARASITES	3	
		3	VETERINARY PATHOLOGY	VPP	601	GENERAL PATHOLOGY	4	
				VPP	602	TECHNIQUES IN PATHOLOGY	3	
		4	VETERINARY PHARMACOLOGY AND TOXICOLOGY	VPT	601	GENERAL PHARMACOLOGY	4	
				VPT	602	AUTONOMIC AND AUTACOID PHARMACOLOGY	6	
		5	VETERINARY PUBLIC HEALTH	VPH	601	ELEMENTS OF VETERINARY PUBLIC HEALTH	3	
				VPH	602	BACTERIAL AND RICKETTSIAL AGENTS OF PUBLIC HEALTH SIGNIFICANCE	4	

Check Box	14	Veterinary Clinical Subjects	**Discipline**	**Code**		**COURSE TITLE**	**Units**	**Proposed changes**
		1	ANIMAL REPRODUCTION, GYNAECOLOGY & OBSTETRICS	VOG	601	GENERAL GYNAECOLOGY	7	
				VOG	602	FEMALE INFERTILITY	9	
		2	VETERINARY CLINICAL MEDICINE, ETHICS & JURISPRUDENCE	VCM	601	RUMINANT CLINICAL MEDICINE -I	3	
				VCM	602	RUMINANT CLINICAL MEDICINE -II	3	
		3	VETERINARY EPIDEMIOLOGY & PREVENTIVE MEDICINE	VEP	601	PRINCIPLES OF EPIDEMIOLOGY	4	
				VEP	602	APPLIED EPIDEMIOLOGY	4	
		4	VETERINARY SURGERY & RADIOLOGY	VSR	601	PRINCIPLES OF SURGERY	5	
				VSR	604	SMALL ANIMAL ANAESTHESIA	5	

Check Box	15	Livestock Production Technology & Products Management	**Discipline**	**Code**		**COURSE TITLE**	**Units**	**Proposed Changes**
		1	ANIMAL GENETICS & BREEDING	AGB	601	ANIMAL CYTOGENETICS AND IMMUNOGENETICS	4	
				AGB	602	MOLECULAR GENETICS IN ANIMAL BREEDING	4	
		2	ANIMAL NUTRITION	ANN	601	ANIMAL NUTRITION – ENERGY AND PROTEIN	4	
				ANN	602	ANIMAL NUTRITION – MINERALS, VITAMINS AND FEED ADDITIVES	3	
		3	LIVESTOCK PRODUCTION AND MANAGEMENT	LPM	601	CATTLE AND BUFFALO PRODUCTION AND MANAGEMENT	5	
				LPM	602	SHEEP AND GOAT PRODUCTION AND MANAGEMENT	5	
		4	LIVESTOCK PRODUCTS TECHNOLOGY	LPT	601	FRESH MEAT TECHNOLOGY	2	
				LPT	602	MEAT PROCESSING, PACKAGING, QUALITY CONTROL AND MARKETING	5	
		5	POULTRY SCIENCE	PSC	601	POULTRY BREEDING AND GENETICS	3	
				PSC	602	POULTRY NUTRITION AND FEEDING	4	

Check Box	16	Fisheries Science	**Discipline**	**Code**		**COURSE TITLE**	**Units**	**Proposed changes**
		1	AQUACULTURE	AQC	501	SUSTAINABLE AQUACULTURE	6	
				AQC	502	SOIL AND WATER QUALITY MANAGEMENT IN AQUACULTURE	4	
		2	AQUATIC ENVIRONMENT MANAGEMENT	AEM	501	AQUATIC ENVIRONMENT AND BIODIVERSITY	3	
				AEM	502	CHEMICAL INTERACTIONS IN THE AQUATIC ENVIRONMENT	4	
		3	AQUATIC ANIMAL HEALTH	AAH	501	VIRAL AND BACTERIAL DISEASES OF FINFISH AND SHELLFISH	5	
				AAH	502	PARASITIC DISEASES OF FINFISH AND SHELLFISH	6	
		4	BUSINESS MANAGEMENT	FBM	501	MANAGERIAL ECONOMICS	5	
				FBM	502	MARKETING MANAGEMENT	5	
		5	FISH BIOTECHNOLOGY	FBT	501	FUNDAMENTALS OF MOLECULAR BIOLOGY	8	
				FBT	502	BASIC CONCEPTS OF CELL BIOLOGY	6	
		6	FISH GENETICS AND BREEDING	FGB	502	POPULATION GENETICS	6	
				FGB	503	QUANTITATIVE GENETICS	6	

		7	FISH NUTRITION AND FEED TECHNOLOGY	FNB	501	FISH NUTRITION	8	
				FNB	502	FISH BIOCHEMISTRY	4	
		8	FISH PHYSIOLOGY AND BIOCHEMISTRY	FPB	501	PHYSIOLOGY OF DIGESTION, GROWTH AND ENERGETICS	4	
				FPB	502	REPRODUCTIVE PHYSIOLOGY AND ENDOCRINOLOGY	6	
		9	FISH PROCESSING TECHNOLOGY	FPT	501	TECHNOLOGY OF FREEZING AND STORAGE	10	
				FPT	502	THERMAL PROCESSING OF FISHERY PRODUCTS	9	
		10	FISHERIES ECONOMICS	FEC	501	MICROECONOMICS	5	
				FEC	502	MACROECONOMICS	6	
		11	FISHERIES ENGINEERING AND TECHNOLOGY	FET	501	ADVANCED FISHING GEAR TECHNOLOGY	10	
				FET	502	ADVANCED FISHING CRAFT TECHNOLOGY	10	
		12	FISHERIES EXTENSION	FEX	501	PERSPECTIVES AND PRACTICES OF FISHERIES EXTENSION	4	
				FEX	502	EXTENSION COMMUNICATION AND METHODS	4	

		13	FISHERIES RESOURCE MANAGEMENT	FRM	501	INLAND FISHERIES RESOURCES	7	
				FRM	503	MARINE ECOSYSTEMS, BIODIVERSITY AND CONSERVATION	5	

Check Box	17	Dairy Science & Technology	**Discipline**	**Code**		**COURSE TITLE**	**Units**	
		1	Dairy Technology	DT	511	ADVANCED DAIRY PROCESSING	6	
				DT	514	DAIRY PROCESS BIOTECHNOLOGY	6	
		2	DAIRY MICROBIOLOGY	DM	512	MICROBIAL PHYSIOLOGY	4	
				DM	515	MICROBIOLOGY OF PROCESSED DAIRY FOODS	5	
		3	DAIRY CHEMISTRY	DC	513	CHEMISTRY OF MILK LIPIDS	5	
				DC	521	CHEMISTRY OF MILK PROTEINS	6	
		4	DAIRY ENGINEERING	DE	511	DAIRY AND FOOD ENGINEERING-I	5	
				DE	515	DESIGN OF PROCESS EQUIPMENT	6	

Check Box	18	Food Science & Technology	**Discipline**	**Code**		**COURSE TITLE**	**Units**	**Proposed Changes**
		1	FOOD TECHNOLOGY	FST	501	FOOD CHEMISTRY & NUTRITION	4	
				FST	502	FOOD MICROBIOLOGY	4	

Annexure-II

Application Form

First Open Call for Inviting the Proposals from Faculty / Researchers

for e-Learning Content Creation and Review Under

NAHEP Project "Investments in ICAR Leadership in Agricultural Higher Education"

Full Name (in block letters)		
Discipline		
Designation		
Name of ICAR Institute/ Agricultural University/ College		
Address For Correspondence		
Email Address		
Telephone Number	**Official**	
	Mobile	
Gender (Male/Female)		
Whether Faculty in the Discipline or Not		
Teaching / Research Experience (No. of years)		
Experience of Digital Content Creation (If any)		

If Yes, Number and Names of E-Course's developed	1. 2
Applying as Course Content Creator/Reviewer	
Name of E-Course and the Unit No./ Name for Creation/ Review of course content	1 2

Educational Qualifications

Degree	Discipline	Year	Class	University
Ph.D.				
Masters				

Signature of the Applicant **Date** **Place**

Recommended By the Dean and Nodal Officer (NAHEP-Component2A) of the Institute/University

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Signature Designation

Address Date