



## Investments in ICAR Leadership in Agricultural Higher Education

*ICAR-Indian Agricultural Statistics Research Institute*

DEVELOPMENT AND REVIEW OF E-LEARNING COURSE CONTENT  
IN CONTINUATION OF CALL 1 FOR PG COURSES

# CALL 3 IS NOW OPEN!

Date of Application Submission

**3<sup>rd</sup> Dec 2020 to 8<sup>th</sup> January 2021**



Courses/ Unit Names, Honorarium, Time Duration and  
other information about the Call is

available [HERE](#)

Designed and Developed by:

Division of Computer Applications

ICAR-Indian Agricultural Statistics Research Institute, Under the Guidance of Agricultural Education Division, ICAR

# AGRICULTURAL HIGHER EDUCATION



Applications are invited from permanent teaching faculty at 75-Agricultural Universities and ICAR Deemed Universities/ICAR institutes with at-least 5 years of experience in teaching/research

The e- Learning material for these courses will be created under different Units. For each Unit, one Content Creator and one Unit Reviewer will be selected. For integrating and reviewing the complete course, one Course Reviewer 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.

For Support and any query email us at:

✉ [support.nahep@icar.gov.in](mailto:support.nahep@icar.gov.in)

✉ [nahep.comp2@icar.gov.in](mailto:nahep.comp2@icar.gov.in)

## **Third Call for Creation of PG e-Learning Courses under NAHEP-2**

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

#### **Introduction**

Education Division undertakes planning, development, coordination and quality assurance of higher agricultural education in the country, and thus, strives for maintaining and upgrading quality and its relevance. E-Learning plays a key role in delivering the quality education in scalable and flexible manner. It is a learning system based on formalised teaching with the help of electronic resources. It is one of most engaging way to study today. Since the learning is conducted online, students can study at their own pace and sometimes in their own time. It allows the teachers to reach out to a larger audience of students as compared to the traditional classroom where the number of students is restricted. Thus, a large number of learners have access to learning.

E-Learning System under NAHEP, Indian Council of Agricultural Research provides 24x7 services for online access to all the teachers, students and learners in the field of agricultural education.

#### **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, 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. E-learning activity is one of its major modules. Its major aim is to strengthen the Agricultural Higher Education in India.

The main objectives of e-Learning activity are:

- Revision of existing UG e-courses
- Development of e-courses for Under Graduates ,Masters and PhD courses
- Deployment of e-courses on MOOC/LMS platform

**During Oct-Dec 2019**, First Open Call was conducted for the creation of e-content for PG Courses. Under the first call, we invited the applications from permanent teaching faculty of

45 agricultural universities to create content for 144 PG for establishment of e-learning/m-learning systems through MOOC/LMS system for participating AUs is a major activity.

Thereafter, **Second Open Call** was carried out in month of May'2020 for the up-gradation (as per Fifth Dean Committee report) of already existing Under-Graduate e-courses & creation of some new UG courses, where faculty from across the 75 agricultural universities in India were invited

The major objectives covered under First & Second Call 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

### **Third e-Learning Call**

The Third Open Call is in connection with First E-Learning Open Call wherein, applications are invited from permanent teaching faculty at 75-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 those Master Degree Courses which were left unapplied or were not allotted to any of the faculties in call 1. For development of e-Learning course content, 2 mandatory courses from each M.Sc. discipline have been selected from 18 BSMA groups. The courses which were not allocated in call 1 and selected for call 3 are mentioned in Annexure-III. The e- Learning material for these courses will be created under different Units. For each Unit, one Content Creator and one Unit Reviewer (Reviewer1) will be selected. For integrating and reviewing the complete course, one Course Reviewer (Reviewer 2) 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.

## **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. **Lessons /Lectures** –At Least 8-10 Lessons must be created for each unit under content

3. **Lecture Structure:**

1. Objectives of the Lecture in bullets (At least 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: All the Questionnaires are mandatory to upload with at least 8-10 Questions each for (MCQ's, True/False & Fill Ups with their options and correct answers), 5-6 Short Question Answer Type and 2-3 Long Question Answer type.
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.
6. Tables and Figures should be numbered as 1,2, 3 ... with footnote/title of the table .
7. Reference (at the end of each lesson) inside the text should be written as Hannon and Ruth (1994), if there are two authors.
  - Willams et al. (1999) should be written where more than two authors are there. All the literature cited in the text should be properly mentioned in the Reference.

## 8. Style of Reference

### For Published Research Paper

- Williams, E.R., John, J.A. and Whitaker, D. (1999). Example of block designs for plant and tree breeding trials. Australian & New Zealand Journal of Statistics, 41(3), 277–284.
- If volume numbers are not available "DOI" need to be mentioned. For Accepted Research Paper
- Everything will be similar as above except after the journal it should be written as "In Press".

### For books

- Hannon, B.M. and Ruth, M. (1994). Dynamic Modeling. Springer-Verlag, New York.

### For Online software

- AgroPlotter. [http://www.coxinternet.com/agrosoft/plotter\\_launch.html](http://www.coxinternet.com/agrosoft/plotter_launch.html), 2002.

**Table.1: Honorarium and Time Duration**

	<b>Unit Wise Breakup into Lectures</b>	<b>Lecture Wise Honorarium</b>	<b>Total Unit Honorarium</b>	<b>Time Duration</b>
<b>Content Creator (Unit Wise)</b>	1 Unit = 10 Hours Approximately 10 Lectures	1500 Rs. per lecture	Rs 15000 per Unit	1 Month
<b>Unit Reviewer (Reviewer 1)</b>	1 Unit = 5 Hours	1500 Rs. per lecture	Rs 7500 per Unit	15 Days
<b>Course Reviewer (Reviewer 2)</b>	1 Complete Course (Final integration & Reviewer of all units obtained from Reviewer 1)		Rs 15,000 per Course	1 Month

## List of MSc. Courses selected for call 3

\*CC=Content Creator, UR= Unit Reviewer &amp; CR = Course Reviewer

S.No	BSMA	Discipline	Course Code	Course	Units		Role
					CC	UR	
1	Basic Sciences	Microbiology	MICRO501	Principles of Microbiology	UNIT-III	UNIT-I UNIT-II UNIT-III	CC, UR
			MICRO 502	Microbial Physiology and Metabolism	Unit- IV		CC
		Plant Physiology	PP508	Morphogenesis, Tissue culture And Transformation	UNIT-IV UNIT-V	UNIT-IV UNIT-V	CC, UR
		Agricultural Chemicals	AC503	Basic Chemistry I	UNIT I UNIT-II UNIT-III UNIT-IV UNIT-V	UNIT-I UNIT-II UNIT-III UNIT-IV UNIT-V	CC, UR, CR
			AC504	Basic Chemistry II	UNIT-I UNIT-II UNIT-III UNIT-IV UNIT-V	UNIT-I UNIT-II UNIT-III UNIT-IV UNIT-V	CC, UR, CR
		Biochemistry	BIOCHEM502	Intermediary Metabolism	-	-	CR
		Chemistry	CHEM502	Thermodynamics	UNIT-II UNIT-III UNIT-IV UNIT-V	UNIT-I UNIT- II UNIT-III UNIT-IV UNIT-V	CC, UR, CR

			CHEM503	Chemical Kinetics And surface Chemistry	UNIT-I UNIT-II UNIT-III UNIT-IV UNIT-V	UNIT-I UNIT-II UNIT-III UNIT-IV UNIT-V	CC, UR, CR
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S.No	BSMA	Discipline	Course Code	Course	Units		Role
					CR	UR	
2	Biotechnology and Bioinformatics	Animal Biotechnology	ABT602	Fundamentals of Cell & Molecular Biology	UNIT-II UNIT-IV	UNIT-II UNIT-IV	CC, UR
		Bioinformatics	BIF501	INTRODUCTION TO BIOINFORMATICS		UNIT-I UNIT-II UNIT-IV	UR
			BIF502	Advanced Bioinformatics	UNIT-III	UNIT-I UNIT-II UNIT-III UNIT-IV	CC,UR

S.No	BSMA	Discipline	Course Code	Course	Units		Roles
					CC	UR	
3	Plant Sciences	Genetics and Plant Breeding	GP502	Principles of Cytogenetics	-	-	CR
			GP504	Principles of Quantitative Genetics	UNIT-II	UNIT-II	CC,UR



S.No	BSMA	Discipline	Course Code	Course	Units		Roles
					CC	UR	
4	Physical Sciences	Agricultural Meteorology	AGM501	Fundamentals of Meteorology And Climatology	UNIT-I UNIT-II UNIT-III UNIT-IV UNIT-V UNIT-VI	UNIT-I UNIT-II UNIT-III UNIT-IV UNIT-V UNIT-VI	CC,UR, CR
			AGM502	Fundamentals of Agricultural Meteorology	UNIT-I UNIT-II UNIT-III UNIT-IV UNIT-V UNIT-VI	UNIT-I UNIT-II UNIT-III UNIT-IV UNIT-V UNIT-VI	CC,UR ,CR
		Agricultural Physics	AP501	Fundamentals of Soil Physics	UNIT-V UNIT-VI UNIT-VII UNIT-VIII UNIT-IX	UNIT-I UNIT-II UNIT-IV UNIT-V UNIT-VI UNIT-VII UNIT-VIII UNIT-IX	CC,UR, CR

S.No	BSMA	Discipline	Course Code	Course	Units		Roles
					CC	UR	
5	Plant Protection	Nematology	NEMA501	Principles of Nematology	UNIT-I UNIT-II UNIT-III UNIT-IV UNIT-V	UNIT-I UNIT-II UNIT-III UNIT-IV UNIT-V	CC,UR, CR
			NEMA503	Structural And Functional Organization Of Nematodes	UNIT-I UNIT-II UNIT-III UNIT-IV UNIT-V	UNIT-I UNIT-II UNIT-III UNIT-IV UNIT-V	CC,UR, CR

S.No	BSMA	Discipline	Course Code	Course	Units		Roles
					CC	UR	
6	Social Sciences	Agri-Business Management	ABM513	Computers For Managers	UNIT-III UNIT-IV UNIT-V	UNIT-I UNIT-II UNIT-III UNIT-IV UNIT-V	CC,UR, CR
			ABM514	Management Information Systems	UNIT-IV UNIT-V	UNIT-III UNIT-IV UNIT-V	CC,UR, CR
		Agricultural Economics	AGECON501	Micro Economic Theory And Applications	UNIT-III	UNIT-III	CC,UR
		Agricultural Extension	EXT501	Development Perspectives Of Extension Education	UNIT-III	UNIT-III	CC,UR

S.No	BSMA	Discipline	Course Code	Course	Units		Roles
					CC	UR	
7	Statistical Sciences	Bio-Statistics	BST551	Mathematical Methods-I	UNIT-III UNIT-IV	UNIT-I UNIT-II UNIT-III UNIT-IV	CC,UR, CR
			BST552	Mathematical Methods-II	UNIT-I UNIT-II UNIT-III UNIT-IV	UNIT-I UNIT-II UNIT-III UNIT-IV	CC,UR, CR
		STATISTICS / AGRICULTURAL STATISTICS	SAT561	STATISTICAL METHODS		UNIT-I UNIT-IV UNIT-V	UR
			SAT564	DESIGN OF EXPERIMENTS		UNIT-IV UNIT-VI	UR

S.No	BSMA	Discipline	Course Code	Course	Units		Roles
					CC	UR	
8	Horticultural Sciences	Fruit Science	FSC501	Tropical And Dry Land Fruit Production	UNIT-IV	UNIT-IV	CC,UR
			FSC502	Subtropical And Temperate Fruit Production	UNIT-IV UNIT-V	UNIT-IV UNIT-V	CC,UR
		Vegetable Science	VSC501	Production Technology of Cool Season Vegetable Crops	UNIT-IV UNIT-V	UNIT-IV UNIT-V	CC,UR

			VSC502	Production Technology of Warm Season Vegetable Crops	UNIT-II UNIT-III	UNIT-II UNIT-III	CC,UR
		Floriculture And Landscape Architecture	FLA501	Breeding of Flower Crops And Ornamental Plants	UNIT-I UNIT-II UNIT-III UNIT-IV UNIT-V	UNIT-I UNIT-II UNIT-III UNIT-IV UNIT-V	CC,UR, CR
		Plantation,Spices,Medicinal & Aromatic Crops	PSMA501	Production of Plantation Crops	UNIT-I UNIT-II UNIT-III UNIT-IV UNIT-V	UNIT-I UNIT-II UNIT-III UNIT-IV UNIT-V	CC,UR, CR
			PSMA502	Production Technology of Spice Crops	UNIT-I UNIT-II UNIT-III UNIT-IV UNIT-V	UNIT-I UNIT-II UNIT-III UNIT-IV UNIT-V	CC,UR, CR

S.No	BSMA	Discipline	Course Code	Course	Units		Roles
					CC	UR	
9	Forestry	Forestry	FOR501	Silviculture	UNIT-I UNIT-II UNIT-III	UNIT-I UNIT-II UNIT-III	CC,UR, CR
			FOR502	Forest Biometry	UNIT-I UNIT-II UNIT-III	UNIT-I UNIT-II UNIT-III	CC,UR, CR

S.No	BSMA	Discipline	Course Code	Course	Units		Roles
					CC	UR	
10	Agricultural Engineering & Technology	Farm Machinery And Power Engineering	FMPE501	Design of Farm Power And Machinery Systems	UNIT-I	UNIT-I	CC,UR
			FMPE502	Soil Dynamics In Tillage And Traction	UNIT-I UNIT-III UNIT-IV UNIT-II	UNIT-I UNIT-III UNIT-IV UNIT-II	CC,UR, CR
		Processing And Food Engineering	PFE501	Transport Phenomena In Food Processing	UNIT-IV	UNIT-III UNIT-IV	CC,UR, CR
			PFE502	Engineering Properties of Food Materials	UNIT-IV	UNIT-II UNIT-IV	CC,UR, CR
		Soil And Water Engineering	SWE501	Watershed Hydrology	UNIT-V	UNIT-V	CC,UR

S.No	BSMA	Discipline	Course Code	Course	Units		Roles
					CC	UR	
11	Home Science	Food & Nutrition	FN502	Advanced Nutrition	UNIT-III UNIT-IV	UNIT-II UNIT-III UNIT-IV	CC,UR, CR
		Family Resource Management	FLRM501	Approaches To Resource Management	UNIT-I UNIT-II UNIT-III UNIT-IV	UNIT-I UNIT-II UNIT-III UNIT-IV	CC,UR, CR

			FLRM502	Consumer Ergonomics	UNIT-I UNIT-II UNIT-III UNIT-IV	UNIT-I UNIT-II UNIT-III UNIT-IV	CC,UR, CR
		Human Development and Family Studies	HDFS501	Theories of Human Development & Behavior	UNIT-III UNIT-IV	UNIT-III UNIT-IV	CC,UR
			HDFS502	Advances In Life Span Development	UNIT-I UNIT-II UNIT-III UNIT-IV	UNIT-I UNIT-II UNIT-III UNIT-IV	CC,UR, CR
		Textile And Apparel Designing	TAD501	Fiber Chemistry	UNIT-I UNIT-II UNIT-III UNIT-IV	UNIT-I UNIT-II UNIT-III UNIT-IV	CC,UR, CR
			TAD502	Textile Quality Analysis	UNIT-I UNIT-II UNIT-III UNIT-IV	UNIT-I UNIT-II UNIT-III UNIT-IV	CC,UR, CR
		Home Science Extension & Communication Management	HECM501	Global Extension Systems	UNIT-III UNIT-IV	UNIT-III UNIT-IV	CC,UR
			HECM502	Training And Human Resource Development	UNIT-IV	UNIT-IV	CC,UR

S.No	BSMA	Discipline	Course Code	Course	Units		Roles
					CC	UR	
12	Basic Veterinary Science	Veterinary Biochemistry	VBC601	Chemistry of Animal Cell	UNIT-II	UNIT-II UNIT-III	CC,UR, CR
			VBC603	Applications of Genomics And Proteomics In Molecular Biology	-	UNIT-II UNIT-III	UR,CR
		Veterinary Physiology	VPY601	Physiology of Digestion	UNIT-III UNIT-IV	UNIT-III UNIT-IV	CC,UR

S.No	BSMA	Discipline	Course Code	Course	Units		Roles
					CC	UR	
13	Veterinary Para Clinical Subjects	Veterinary Microbiology	VMC602	Bacteriology-II	UNIT-II	UNIT-II	CC,UR
		Veterinary Parasitology	VPA603	Veterinary Entomology And Acarology	UNIT-II UNIT-III	UNIT-II UNIT-III	CC,UR
		Veterinary Pharmacology And Toxicology	VPT602	Autonomic And Autacoid Pharmacology	-	-	CR
		Veterinary Public Health	VPH601	Elements Of Veterinary Public Health	UNIT-I UNIT-II UNIT-III	UNIT-I UNIT-II UNIT-III	CC,UR, CR

S.No	BSMA	Discipline	Course Code	Course	Units		Roles
					CC	UR	
14	Veterinary Clinical Subjects	Animal Reproduction Gynecology & Obstetrics	VOG601	General Gynecology	UNIT-V	UNIT-V	CC,UR
			VOG602	Female Infertility	UNIT-VIII	UNIT-VIII UNIT-IX	CC,UR, CR
		Veterinary Epidemiology & Preventive Medicine	VEP601	Principles of Epidemiology	UNIT-I UNIT-II UNIT-III UNIT-IV	UNIT-I UNIT-II UNIT-III UNIT-IV	CC,UR, CR
			VEP602	Applied Epidemiology	UNIT-I UNIT-II UNIT-III UNIT-IV	UNIT-I UNIT-II UNIT-III UNIT-IV	CC,UR, CR

S.No	BSMA	Discipline	Course Code	Course	Units		Role
					CC	UR	
15	Livestock Production Technology & Products Management	Animal Genetics & Breeding	AGB601	Animal Cytogenetics And Immunogenetics	-	-	CR
		Poultry Science	PSC601	Poultry Breeding And Genetics	UNIT-III	UNIT-III	CC,UR
			PSC602	Poultry Nutrition And Feeding	UNIT-IV	UNIT-IV	CC,UR



S.No	BSMA	Discipline	Course Code	Course	Units		Roles
					CC	UR	
16	Dairy Science & Technology	Dairy Technology	DT511	Advanced Dairy Processing	UNIT-I UNIT-II UNIT-III UNIT-IV UNIT-V UNIT-VI	UNIT-I UNIT-II UNIT-III UNIT-IV UNIT-V UNIT-VI	CC,UR, CR
			DT514	Dairy Process Biotechnology	UNIT-I UNIT-II UNIT-III UNIT-IV UNIT-V UNIT-VI	UNIT-I UNIT-II UNIT-III UNIT-IV UNIT-V UNIT-VI	CC,UR, CR
		Dairy Microbiology	DM512	Microbial Physiology	UNIT-I UNIT-II UNIT-III UNIT-IV	UNIT-I UNIT-II UNIT-III UNIT-IV	CC,UR, CR
			DM515	Microbiology of Processed Dairy Foods	UNIT-I UNIT-II UNIT-III UNIT-IV UNIT-V	UNIT-I UNIT-II UNIT-III UNIT-IV UNIT-V	CC,UR, CR
		Dairy Chemistry	DC513	Chemistry of Milk Lipids	UNIT-II UNIT-III UNIT-IV UNIT-V	UNIT-II UNIT-III UNIT-IV UNIT-V	CC,UR

		DC521	Chemistry of Milk Proteins	UNIT-IV UNIT-V UNIT-VI	UNIT-IV UNIT-V UNIT-VI	CC,UR
	Dairy Engineering	DE511	Dairy And Food Engineering-I	UNIT-I UNIT-II UNIT-III UNIT-IV UNIT-V	UNIT-I UNIT-II UNIT-III UNIT-IV UNIT-V	CC,UR, CR
		DE515	Design of Process Equipment	UNIT-I UNIT-II UNIT-III UNIT-IV UNIT-V UNIT-VI	UNIT-I UNIT-II UNIT-III UNIT-IV UNIT-V UNIT-VI	CC,UR, CR
	Food Technology	FST501	Food Chemistry & Nutrition	UNIT-IV	UNIT-I UNIT-II UNIT-III UNIT-IV	CC,UR, CR
		FST502	Food Microbiology	UNIT-IV	UNIT-IV	CC,UR