

## **Fourth Call for Review and Finalization of UG E-Learning Courses under NAHEP Component 2 - "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 a scalable and flexible manner. It is a learning system based on formalised teaching with the help of electronic resources. It is one of the most engaging ways 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 are restricted. Thus, a large number of learners have access to learning.

Several UG level E-Course wise contents were developed in seven disciplines (viz. Agricultural Science; Fisheries Science; Dairy Science; Veterinary & Animal Husbandry; Horticulture; Home Science and Agricultural Engineering). These were developed through partnerships and efforts of the components of the ICAR-Agricultural Universities (AUs) System comprising State Agricultural Universities (SAUs), deemed to be universities (DUs), Central Agricultural University (CAU) and Central Universities (CUs) with Agriculture Faculty at SAUs and other organisations under “National Agricultural Innovation Project”.

E-Learning portal 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. The courses then created under NAIP will be upgraded as per Fifth Dean Committee report and some new UG courses will be created under the light of NAHEP project funded by the World Bank.

### **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. Implementing the E-Learning activity is one of its major activities. 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/ creation of new 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 inviting the applications for 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 courses.

Thereafter, **Second Open Call** was carried out in the 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 74 agricultural universities in India were invited

In Continuation with First Open Call, we declared **Third open call** in the month of December'2020 for inviting the applications faculty from the 74 agricultural universities in India, for leftover PG courses offered in call 1.

#### **Fourth E-Learning Call**

The Fourth Open Call is meant for inviting the applications from permanent teaching faculty at Agricultural Universities and ICAR deemed universities/ ICAR institutes with at-least 5 years of experience in teaching/ research, for reviewing the Under-Graduate e-courses. In this Call, a few of the already created UG E-Courses as per fifth dean committee will be reviewed and finalized. The open courses are mentioned in Annexure-VIA & VIB. The syllabus for the courses is as per the prescribed UG curricula and syllabi of the Education Division, ICAR, New Delhi. Applications are invited online from permanent teaching faculty across AUs with at least 5 years of experience in teaching/research to review Undergraduate courses from all Agricultural Universities and ICAR deemed universities. The Course Structure and format for reviewing the E-Learning content and the Honorarium is given below. Interested faculty can apply online using E-Learning Portal.

### **Course Structure and Format to be used for Upgrading/Creating E-Course Content**

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

2. Lecture-wise breakup of the Course. (Around 10-15 Lectures)

#### **3. Lecture Structure:**

- Objectives of the Lecture in bullets (At least 2).
- Glossary of terms: 5-10 definitions of the main terms used in each Lecture.
- E-Lecture: E-Learning 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).

- Questions/Answers: At least 5-10 Questions (MCQ's, True/False, Fill Ups, Long answer type and short answer type) with their options and correct answers. (all the questionnaires are mandatory)
- At least 1 Assignment from each Lecture.
- A power point presentation for each Lecture of the course.
- Animations/ Explanatory Video (if any)

**4. Format:**

1. The E-Learning content should be created in MS-Word, using the font style: Times New Roman.
2. Title of Course 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. Sub-sections should be numbered as 1.1, 1.1.1 etc.

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

	<b>Total Honorarium</b>	<b>Time Duration</b>
<b>Content Creator/ Reviser</b>	Rs 15000 per Course	1 Month
<b>Course Reviewer</b>	Rs 15000 per Course	1 Month

## List of old UG Courses to be reviewed in Fourth Call

## B.Sc (Agriculture)

S.No	Course	Role
1	Agricultural Finance & Cooperation	Course Reviewer
2	Agricultural Marketing Trade and Prices	Course Reviewer
3	Elementary Mathematics	Course Reviewer
4	Livestock Production and Management	Course Reviewer
5	Post-harvest Management and Value Addition of Fruits and Vegetables	Course Reviewer
6	Principles of Seed Technology	Course Reviewer

## B.Tech (Agricultural Engineering)

S.No	Course	Role
1	Applied Electronics and Instrumentation	Course Reviewer
2	Dairy and Food Engineering	Course Reviewer
3	Drainage Engineering	Course Reviewer
4	Electrical Machines and Power Utilization	Course Reviewer
5	Engineering Mathematics - I	Course Reviewer

S.No	Course	Role
6	Engineering Mathematics-II	Course Reviewer
7	Food Packaging Technology	Course Reviewer
8	Heat and Mass Transfer	Course Reviewer
9	Machine Design	Course Reviewer
10	Mechanics of Tillage and Traction	Course Reviewer

#### B.Tech (Dairy Technology)

S.no	Course	Role
1	Cheese Technology	Course Reviewer
2	Chemical Quality Assurance	Course Reviewer
3	Communication Skills	Course Reviewer
4	Dairy Engineering	Course Reviewer
5	Dairy Process Engineering	Course Reviewer
6	Fat Rich Dairy Products	Course Reviewer
7	Food Engineering	Course Reviewer
8	Food Technology-I	Course Reviewer
9	Fundamentals of Microbiology	Course Reviewer

S.no	Course	Role
10	Heat & Mass Transfer	Course Reviewer
11	Ice-cream & Frozen Deserts	Course Reviewer
12	Instrumentation and Process Control	Course Reviewer
13	Organic Chemistry	Course Reviewer
14	Packaging of Dairy Products	Course Reviewer
15	Starter Cultures and Fermented Milk Products	Course Reviewer

#### B.Sc (Horticulture)

S.No	Course	Role
1	Breeding of Fruit and Plantation Crops	Course Reviewer
2	Diseases Of Vegetable, Ornamental And Spice Crops	Course Reviewer
3	Fundamentals Of Entomology	Course Reviewer
4	Fundamentals Of Extension Education	Course Reviewer
5	Fundamentals Of Food Technology	Course Reviewer
6	Fundamentals Of Horticulture	Course Reviewer
7	Fundamentals Of Plant Pathology	Course Reviewer
8	Growth and Development of Horticultural Crops	Course Reviewer

S.No	Course	Role
9	Horti-Business Management	Course Reviewer
10	Nematode Pests Of Horticultural Crops And Their Management	Course Reviewer
11	Organic Farming	Course Reviewer
12	Ornamental Horticulture	Course Reviewer
13	Potato And Tuber Crops	Course Reviewer
14	Principles of Plant Breeding	Course Reviewer
15	Seed Production Of Vegetable, Tuber And Spice Crops	Course Reviewer
16	Soil Fertility And Nutrient Management	Course Reviewer
17	Spices And Condiments	Course Reviewer
18	Temperate Fruit Crops	Course Reviewer
19	Tropical and Subtropical Fruits	Course Reviewer

**B.F.Sc (Fisheries)**

<b>S.No</b>	<b>Course</b>	<b>Role</b>
1	Fisheries Extension Education	Course Reviewer
2	Freezing Technology	Course Reviewer
3	Information And Communication Technology	Course Reviewer
4	Principles Of Aquaculture	Course Reviewer
5	Soil And Water Chemistry	Course Reviewer

**B.Sc (Home Science)**

<b>S.No</b>	<b>Course</b>	<b>Role</b>
1	Community Nutrition	Course Reviewer
2	Fashion Illustrations	Course Reviewer
3	Food Standards And Quality Control	Course Reviewer
4	Food Toxicology	Course Reviewer
5	Housing And Space Management	Course Reviewer
6	Instructional Video Production	Course Reviewer
7	Introduction to Clinical Nutrition ~Clinical Nutrition	Course Reviewer



S.No	Course	Role
8	Project Management	Course Reviewer
9	Public Relations And Social Marketing	Course Reviewer
10	Women In Agriculture	Course Reviewer
11	Community Nutrition	Course Reviewer
12	Fashion Illustrations	Course Reviewer
13	Food Standards and Quality Control	Course Reviewer

**Annexure -VIB**

**List of new UG Courses to be reviewed in Fourth Call**

**B.Sc (Agriculture)**

S.No	Courses	Role
1.	Farm Management, Production & Resource Economics	Course Reviewer
2.	Problematic Soils and Their Management	Course Reviewer
3.	Environmental Studies and Disaster Management	Course Reviewer
4.	Introduction to Forestry	Course Reviewer

S.No	Courses	Role
5.	Food Safety and Standards	Course Reviewer
6.	Geoinformatics and Nanotechnology and Precision Farming	Course Reviewer

#### B.F.Sc (Fisheries Science)

S.No	Courses	Role
1	Aquatic Ecology, Biodiversity and Disaster Management	Course Reviewer
2	Fish Canning Technology	Course Reviewer
3	Quality Assurance of Fish and Fishery Products	Course Reviewer
4	Navigation and Seamanship	Course Reviewer

#### B.Tech (Agricultural Engineering)

S.No	Courses	Role
1	Theory of Machines	Course Reviewer
2	Artificial Intelligence	Course Reviewer
3	Bio-energy Systems: Design and Applications	Course Reviewer
4	Plastic Applications in Agriculture	Course Reviewer

S.No	Courses	Role
5	Water Quality and Management Measures	Course Reviewer
6	Mechatronics	Course Reviewer

#### B.Sc (Home Science)

S.No	Courses	Role
1	Diffusion and Adoption of Homestead Technologies	Course Reviewer
2	Textile Science and Fabric Care	Course Reviewer
3	Techniques of Fabric Construction	Course Reviewer
4	Food and Nutrition Policy and Agriculture	Course Reviewer

#### B.Tech (Dairy Technology)

S.No	Courses	Role
1	Energy Conservation and Management	Course Reviewer
2	ICT in Dairy Industry and Introduction to Operations Research	Course Reviewer
3	Emerging Dairy Processing Technologies	Course Reviewer

**B.Sc (Horticulture)**

S.No	Courses	Role
1	Agro-meteorology and Climate Change	Course Reviewer

**B.Sc (Forestry)**

S.No	Courses	Role
1	Wood Science and Technology	Course Reviewer
2	Agroforestry Systems and Management	Course Reviewer
3	Basic Mathematics	Course Reviewer
4	Climate Science	Course Reviewer
5	Dendrology	Course Reviewer
6	Forest Ecology and Biodiversity	Course Reviewer
7	Forest Economics and Marketing	Course Reviewer
8	Forest Management	Course Reviewer
9	Forest Mensuration	Course Reviewer
10	Forest Survey & Engineering	Course Reviewer
11	Introduction to Agronomy and Horticulture	Course Reviewer
12	Logging and Ergonomics	Course Reviewer

S.No	Courses	Role
13	Ornithology & Herpetology	Course Reviewer
14	Plant Biochemistry	Course Reviewer
15	Plantation Forestry	Course Reviewer
16	Restoration Ecology	Course Reviewer
17	Seed Technology & Nursery Management	Course Reviewer
18	Soil Biology & Fertility	Course Reviewer
19	Statistical Methods & Experimental Designs	Course Reviewer
20	Theory and Practice of Silviculture	Course Reviewer
21	Tree Improvement	Course Reviewer
22	Wildlife Management	Course Reviewer
23	Wood Anatomy	Course Reviewer
24	Wood Products and Utilization	Course Reviewer

#### B.Tech (Biotechnology)

S.No	Courses	Role
1	Animal Biotechnology	Course Reviewer
2	Basic Genetics	Course Reviewer

S.No	Courses	Role
3	Basic Mathematics – I	Course Reviewer
4	Basic Mathematics - II	Course Reviewer
5	Basic Statistics	Course Reviewer
6	Bioinformatics Tools and Biological Databases	Course Reviewer
7	Cell Biology	Course Reviewer
8	Classical and Molecular Cytogenetics	Course Reviewer
9	Computational Biology	Course Reviewer
10	Computational Methods for Data Analysis	Course Reviewer
11	Enzymology and Enzyme Technologies	Course Reviewer
12	Food Biotechnology	Course Reviewer
13	Immunology	Course Reviewer
14	Introductory Bioinformatics	Course Reviewer
15	IPR, Biosafety and Bioethics	Course Reviewer
16	Livestock Production and Management	Course Reviewer
17	Microbial Biotechnology	Course Reviewer
18	Microbial Genetics	Course Reviewer
19	Microbiology	Course Reviewer

S.No	Courses	Role
20	Molecular Biology	Course Reviewer
21	Molecular Breeding of Horticultural Crops and Forest Trees	Course Reviewer
22	Molecular Diagnostics	Course Reviewer
23	Molecular Marker Technology	Course Reviewer
24	Pharmacogenomics	Course Reviewer
25	Plant Physiology	Course Reviewer
26	Plant Tissue Culture and its Applications	Course Reviewer
27	Principles and Applications of Plant Genetic Transformation	Course Reviewer
28	Production Technologies for Horticultural Crops	Course Reviewer
29	Recombinant DNA Technology	Course Reviewer
30	Structural Bioinformatics	Course Reviewer