

NAHEP



NATIONAL AGRICULTURAL HIGHER EDUCATION PROJECT



ASSAM AGRICULTURAL UNIVERSITY

NAHEP ACTIVITIES AT AAU FROM 2018-2021



National Agricultural Higher Education Project

Title: *Strengthening Assam Agricultural University with Education Quality Parameters for Production of 21st Century Ready Human Resource*

Budget: 24.48 crore

Component I (IDP) of National Agricultural Higher Education Project is being implemented in Assam Agricultural University since 2018. Since then a number of activities were undertaken as per the provision of the GOI-WB funded project to improve academic atmosphere of the university. All the accredited constituent colleges of AAU are the beneficiaries of the IDP, NAHEP. These colleges are *viz.*, College of Agriculture, Jorhat; College of Community Science, Jorhat; College of Veterinary Sciences, Khanapara; College of Fisheries Science, Raha; Biswanath College of Agriculture, Biswanath Chariali and SCS College of Agriculture, Dhubri. At national level, 64 SAUs, 3 CAUs, 4 Deemed Universities and 4 central universities having agriculture faculty are the beneficiary. Assam Agricultural University is privileged to bag such an ambitious project. NAHEP focusses on skill and entrepreneurship development

With the objective to improve the skill of the people engaged in farming, initiative was adopted under IDP of NAHEP to produce 21st century matching teaching learning ambience to produce science, society, industry and self-ready students. Under-graduate students from across the faculties of Assam Agricultural University were sent to different foreign institutes, in order to endure exposure visit for a period of 15-90 days. The purpose of this interactive visit was to give a broader outlook to the students regarding the technologies used in the country and acquaintance with various agriculture and allied activities carried out in the countries. The overall idea of the entire programme was to have a comparative study of the agricultural technologies and practices among the countries and to explore the possibilities in this sector. Hence, organizing such programme will result in shifting of information intensive knowledge to skill intensive education.

The students were sent to ETH, Zurich, Switzerland; ITCPH, Philippines; AIT, Thailand, IOWA State University, USA and University of Nebraska, USA which are among the frontier institutes in the world for providing quality education. Altogether 70 under-graduate students of AAU were sent to these institutes to undergo the exposure visit. The students sent to ITCPH, Philippines were able to learn about the theoretical and practical skills in the piggery farms *viz.* breeding, management, nutrition, etc. along with pork processing technologies. In ETH, Zurich, students were exposed to the benefits and drawbacks of Organic farming and its role in sustainable agriculture. Students sent to AIT, Thailand learnt about the food production system of the Asian countries mainly focusing on food safety and security. In IOWA State University, USA, students' training was mainly focused on precision farming with the use of various technological interventions *viz.* application of Artificial Intelligence, Remote sensing, weather modelling techniques, etc. In this year, 4 students of Agriculture and 6 from Veterinary faculty are in UNL, USA. Fifteen students are expected to go to University of Central Lancashire, UK in April, 2022.

Till now 21 faculty members across the colleges of AAU attended training in different institutes of the world.

The exposure visit has paved the way to attract more students for pursuing agriculture as a prominent career option. The students were motivated to perform better in their academic curriculum, so that they are selected to undergo such constructive training in the foreign institutes. It was observed that the students who were benefitted were much more confident after the training. During their training in the institutes, they visited numerous farms and industries, which gave them a general overview of the agriculture and allied activities of the country. The students were exposed to the variant culture of the concerned country, along with an actual foreign language experience, enable them to tackle multiple responsibilities and makes the student more independent. This would help them to build a better and bright future. After the completion of the training, their academic performance was improved. As many as 22 faculty members attended training at different reputed institutes of the globe in frontier areas of science.

The Library of AAU have been able to procure recent E-Books of different subjects and of late one Language Laboratory each in College of Agriculture, Jorhat, College of Veterinary Science, Khanapara, College of Fisheries, Raha and Biswanath College of Agriculture, Biswanath Chariali are recent addition to the resource of the University.

Through IDP NAHEP as many as 20 classroom and laboratories have been renovated and different component of the project were strengthened with equipment.

Till 31/03/2022, 70.5 % of the fund transferred have been spent. Hopefully remaining budget will be utilised in planned manner in 2022-23 if extended.

NAHEP have played a key role in enhancing quality of the students. This project aims to raise the standard of current Agricultural Education system that provides more jobs and can develop more entrepreneurs. One student of College of Fisheries, Raha under AAU developed a technique of ornamental fish breeding. It is expected that many of the students who have gained higher training under NAHEP would prefer to become entrepreneur of future Assam.

(K.K. Sharma)
PI, IDP, NAHEP
Assam Agricultural University

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Fund Utilization % under IDP, NAHEP, AAU at a glance

S. No.	Head of Account	Sanctioned Budget	Grant Received Up to 31.03.2022	Expenditure Up to 31.03.2022	Closing Balance as on 31.03.2022	Utilization Percentage (%)
A. Goods & Equipment						
1	Equipment, Plant & Machinery					
2	Office Equipment	10,00,000.00	10,00,000.00	8,91,103.00	1,08,897.00	89.11
3	Laboratory Equipment	1,99,69,000.00	1,99,69,000.00	1,80,00,671.00	19,68,329.00	90.14
4	Furniture & Fixtures	10,00,000.00	10,00,000.00	9,80,431.00	19,569.00	98.04
5	Computers & peripherals (Hardware & Software)	2,51,60,000.00	2,51,60,000.00	2,24,66,442.00	26,93,558.00	89.29
6	Books & Journals	35,00,000.00	35,00,000.00	35,00,000.00	-	100.00
Sub Total (A)		5,06,29,000.00	5,06,29,000.00	4,58,38,647.00	47,90,353.00	90.54
B. Civil Works						
7	Minor repairs & renovation works	1,56,30,000.00	1,56,30,000.00	1,43,29,348.00	13,00,652.00	91.68
Sub Total (B)		1,56,30,000.00	1,56,30,000.00	1,43,29,348.00	13,00,652.00	91.68
Capital Expenditure Sub-total (A+B)		6,62,59,000.00	6,62,59,000.00	6,01,67,995.00	60,91,005.00	90.81

C. Human Capacity Building						
8	National Training	-	-	-	-	
9	International Training	3,75,10,000.00	2,72,80,000.00	1,90,69,153.00	82,10,847.00	69.90
10	Short Visits/ Seminars	30,00,000.00	16,00,000.00	14,35,866.00	1,64,134.00	89.74
11	Meetings & Workshops	24,50,000.00	24,50,000.00	24,34,597.72	15,402.28	99.37
Sub Total (C)		4,29,60,000.00	3,13,30,000.00	2,29,39,616.72	83,90,383.28	73.22
D. Consultancy						
12	National Level Consultancies	45,00,000.00	30,00,000.00	1,00,000.00	29,00,000.00	3.33
Sub Total (D)		45,00,000.00	30,00,000.00	1,00,000.00	29,00,000.00	3.33
E. Recurrent Cost						
13	Travel expenses	18,00,000.00	8,00,000.00	6,01,629.00	1,98,371.00	75.20
14	Contractual Services (RA/SRF/ System Analyst /Programmer)	2,08,92,000.00	1,36,49,000.00	1,19,29,211.00	17,19,789.00	87.40
15	Operational Costs	10,22,10,000.00	7,01,58,000.00	3,35,67,115.15	3,65,90,884.85	47.85
16	Institutional Charges	62,46,000.00	42,31,000.00	42,31,000.00	-	100.00
Sub Total (E)		13,11,48,000.00	8,88,38,000.00	5,03,28,955.15	3,85,09,044.85	56.65
Revenue Expenditure Sub-total (C+D+E)		17,86,08,000.00	12,31,68,000.00	7,33,68,571.87	4,97,99,428.13	59.57
Grand Total (A+B+C+D+E)		24,48,67,000.00	18,94,27,000.00	13,35,36,566.87	5,58,90,433.13	70.50

Progress of work under IDP, NAHEP of Assam Agricultural University

Physical progress

1. Civil Works developed

Sl. No.	Facility created	Place of creation	Cost(Rs)	Funding Agency/ Scheme	Capacity	Special Features	Beneficiary/ Target groups
1	Lab area and classroom renovation	Bio-pesticide Laboratory, AAU, Jorhat	4,62,554	NAHEP	50	Training on bio pesticide production to the students for skill and entrepreneurship development	Students
2	Existing net houses and labs renovation	Bio-fertilizer Production Unit, AAU, Jorhat	4,62,889	NAHEP	60	Provision of efficient work space for the students, research scholars engaged in biofertilizer production activities and research	Students
3	Shade and net house renovation of organic seed production	Department of PBG, AAU, Jorhat	9,25,146	NAHEP	60	Skill development training of the students on quality production of crops and their planting materials	Students
4	Office cum seed testing lab cum classroom renovation of organic seed production	Department of PBG, AAU, Jorhat	4,62,842	NAHEP	60	Conducting practical demonstration for the students for skill development on seed quality testing	Students

5	Repair / renovation of Poultry house	Poultry unit, College of Veterinary Science, AAU, Khanapara	4,62,906	NAHEP	60	Skill Developments of students in rearing of poultry birds	Students
6	Renovation of existing building for processing, product preparation and sensory evaluation individual testing booths, Class room, office chamber and store room	Poultry unit, College of Veterinary Science, AAU, Khanapara	9,27,474	NAHEP	60	Entrepreneurship and skill development training programme. Processing of poultry birds in hygienic condition. Preparation of various value added poultry products. Training of students and conducting practical classes	Students
7	Sales booth/classroom renovation	Poultry unit, College of Veterinary Science, AAU, Khanapara	3,70,004	NAHEP	50	Training and entrepreneurship development of the students through on production of processed poultry products	Students
8	Repair and renovation of	College of Community	4,62,936	NAHEP	50	Skill development training of the students through theoretical and hands-on training	Students

	laboratory and classroom	Science, AAU, Jorhat				on preparation and packaging of bakery and confectionary products	
9	Repair and renovation of Classroom & Laboratory	College of Veterinary Science, AAU, Khanapara	4,63,784	NAHEP	50	To impart hands-on training and research work of the students	Students
10	Hatchery renovation	College of Fisheries Science, AAU, Raha	7,38,455	NAHEP	60	Breeding of local variety of fish was conducted. Students were exposed to practical aspect of breeding	Students
11	Class room renovation	College of Fisheries Science, AAU, Raha	4,63,784	NAHEP	50	Gearing up of the teaching facilities with modern teaching tools	Students
12	Laboratory renovation	College of Fisheries Science, AAU, Raha	3,00,000	NAHEP	60	Training of the students on various aspects of fish breeding, fish feed nutrients analysis, etc.	Students
13	Renovation of existing polyhouse	Floriculture unit, AAU, Jorhat	11,61,184	NAHEP	60	Quality production of horticultural produce and planting materials, which enable effective research and training of the students	Students

14	Strengthening of existing tissue culture laboratory	Floriculture unit, AAU, Jorhat	9,25,012	NAHEP	40	Skill development training of the students on micropropagation using tissue culture techniques for quality production and mass propagation of horticultural crops including flowers and ornamental crops	Students
15	Renovation of classroom	Horticulture Orchard, BNCA, AAU, Biswanath Chariali	4,62,202	NAHEP	50	Practical classes of students and demonstration and hands-on training of various horticultural technologies	Students
16	Development of Plot with irrigation and drainage for organic seed production	AAU Jorhat	4,62,434	NAHEP	50	Facilitate irrigation and drainage in the farm	Students
17	Repair of Covered Threshing floor of organic seed production	AAU Jorhat	4,62,401	NAHEP	50	Post-harvest management after harvesting is eased	Students
18	Minor and Miscellaneous repair and renovation work	Tea Husbandry and Technology, AAU Jorhat	13,88,139	NAHEP	50	Classroom facilities renovated	Students

19	Processing unit / Instructional factory up-gradation	Tea Husbandry & Technology of AAU, Jorhat	22,07,447	NAHEP	100	<ul style="list-style-type: none"> To provide the best working facilities to the students and faculties to carry out tea processing in a modern working environment To develop the entrepreneurial skill of students by involving them in tea processing and marketing 	Students
20	Renovation of Live feed unit	College of Fisheries Science, AAU, Raha	7,90,879	NAHEP	60	Training of students on various aspects of fishery and fish breeding.	Students
Total			1,43,29,348		1385		

2. Computer and Peripherals

Sl. No.	Facility created	Location	Number	Cost(Rs)	Funding Agency/ Scheme	Special Features	Beneficiary/ Target groups
1	Computer and Peripherals	NAHEP Office	18	58,38,000	NAHEP	Strengthening of Library and Classroom facilities	Students and Faculties
		Account Cell	1				
		ARIS Cell	18				

	AAU Central Library	25				
	Department of Horticulture, AAU, Jorhat	1				
	Department of Soil Science, AAU, Jorhat	1				
	Department of Plant Pathology, AAU, Jorhat	1				
	Department of PBG, AAU, Jorhat	1				
	Department of Tea Husbandry and Technology, AAU, Jorhat	1				
	Department of Agricultural Biotechnology, AAU, Jorhat	6				
	College of Fisheries Science, AAU, Raha	10				
	College of Veterinary Science, AAU, Khanapara	15				
	College of Community Science, AAU, Jorhat	7				
	SCS College of Agriculture, AAU, Dhubri	10				

		Biswanath College of Agriculture, AAU, Biswanath Chariali	10				
2	Computer Server	AAU, Jorhat	1	9,45,000			
3	Language Lab	AAU, Jorhat; CVSc., Khanapara; CFSc., Raha; BNCA, Biswanath Chariali	4	11,81,250			
Total			126	79,64,250			

3. Books and E-Books

Sl. No.	Facility created	Location	Cost(Rs)	Funding Agency/ Scheme	Capacity	Special Features	Beneficiary/ Target groups
1	Books and E-Books	<ul style="list-style-type: none"> • Rev. B.M. Pugh Library, AAU, Jorhat • Library, College of Veterinary Science, AAU, Khanapara • Library, College of Fisheries Science, AAU, Raha • Library, Biswanath College of Agriculture, 	35,00,000	NAHEP	255	Strengthening of Central Library	Students and Faculties

		AAU, Biswanath Chariali • Library, SCS College of Agriculture, AAU, Dhubri					
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4. Lab Equipments:

Altogether **50 laboratory equipments** for college of Agriculture, Jorhat, College of Community Science, Jorhat, College of Fisheries, Raha, College of Veterinary Science, Khanapara, Biswanath College of Agriculture, Biswanath Chariali worth **Rs. 180 lakh** were procured under NAHEP. These equipments are being utilized by Students, Researchers and Teachers of these colleges where students from N. E. States are studying.

Laboratory equipments (Details)

Sl. No.	Item	Quantity	Cost	Location	Special Features
1	Planetary Mixer	1	₹ 1,17,410.00	College of Community Science, AAU	Skill development training of students for preparation of bakery products and value addition
2	Sugar Grinder	1	₹ 88,500.00	College of Community Science, AAU	Skill development training of students for preparation of bakery products and value addition
3	Electric Hand Blender	1	₹ 2,665.00	College of Community Science, AAU	Skill development training of students for preparation of bakery products and value addition

4	Refrigerator	1	₹ 1,16,500.00	College of Community Science, AAU	Skill development training of students for preparation of bakery products and value addition
5	Electric Oven	1	₹ 1,47,500.00	College of Community Science, AAU	Skill development training of students for preparation of bakery products and value addition
6	Heat Sealer	1	₹ 69,620.00	College of Community Science, AAU	Skill development training of students for preparation of bakery products and value addition
7	Dough Sheet	1	₹ 2,59,810.00	College of Community Science, AAU	Skill development training of students for preparation of bakery products and value addition
8	Laboratory Equipment For Fish Breeding	1	₹ 4,99,800.00	College of Fisheries Science, AAU, Raha	For different activities related to skill development in fish breeding
9	Gas Liquid Chromatograph	1	14,99,400	Department of Soil Science, CA (Bio-Fertilizer), AAU	To incubate samples in water at a constant temperature over a long period of time.
10	BOD Incubator	1	₹ 1,22,283.00	Department of Soil Science, CA (Bio-Fertilizer), AAU	Culturing microbes, washing blots, and general mixing
11	Mechanical Mixer	1	₹ 8,02,593.00	Department of Soil Science, CA (Bio-Fertilizer), AAU	For storage and examination of small specimens.
12	Mixing Trays	1	₹ 8,260.00	Department of Soil Science, CA (Bio-Fertilizer), AAU	Precision weighing applications in laboratories
13	Auto Clave Vertical	1	₹ 1,95,195.00	Department of Soil Science, CA (Bio-Fertilizer), AAU	Growing and maintaining microbiological cultures or cell cultures under optimal temperature, humidity & other conditions
14	Automatic Sealing Machine	1	₹ 86,100.00	Department of Soil Science, CA (Bio-Fertilizer), AAU	For Applying heat, causing the ends of the product packaging to fuse
15	Electronic Balance	1	₹ 64,900.00	Department of Soil Science, CA (Bio-Fertilizer), AAU	
16	Deep Fridge	1	₹ 5,54,600.00	Department of Soil Science, CA (Bio-Fertilizer), AAU	Separation of various component in GLC column

17	Water Still	1	₹ 1,39,020.00	Department of Soil Science, CA (Bio-Fertilizer), AAU	
18	De-feathering Machine	1	₹ 50,740.00	College of Veterinary Science, Khanapara	For processing before packaging
19	Scalding Tank	1	₹ 44,840.00	College of Veterinary Science, Khanapara	Sterilizing the birds
20	Meat Mincer	1	₹ 97,650.00	College of Veterinary Science, Khanapara	For hands on training on processing, packaging and storing of Pork and products
21	Vacuum Packing Unit	1	₹ 1,55,400.00	College of Veterinary Science, Khanapara	For hands on training on processing, packaging and storing of Pork and products
22	Brine Injector	1	₹ 2,57,250.00	College of Veterinary Science, Khanapara	For hands on training on processing, packaging and storing of Pork and products
23	Single Phase Motor	1	₹ 39,900.00	College of Veterinary Science, Khanapara	For slicing
24	Vertical Refrigerator	1	₹ 52,500.00	College of Veterinary Science, Khanapara	For hands on training on processing, packaging and storing of Pork and products
25	Bone Saw Machine	1	₹ 66,150.00	College of Veterinary Science, Khanapara	For hands on training on processing, packaging and storing of Pork and products
26	Display Cabinet	1	₹ 37,800.00	College of Veterinary Science, Khanapara	For hands on training on processing, packaging and storing of Pork and products
27	Electrically operated Smoking cabinet	1	₹ 1,94,250.00	College of Veterinary Science, Khanapara	For hands on training on processing, packaging and storing of Pork and products
28	Chimney	1	₹ 28,350.00	College of Veterinary Science, Khanapara	For hands on training on processing, packaging and storing of Pork and products
29	Killing Cones	5	₹ 47,250.00	College of Veterinary Science, Khanapara	For culling poultry
30	Poultry Rendering Plant	1	₹ 75,66,518.00	College of Veterinary Science, Khanapara	<ul style="list-style-type: none"> • Preparation of value added meat • Production of large amount of offal's & blood, can be used efficiently in by products preparation.

					<ul style="list-style-type: none"> • Awareness among young veterinarians to take Entrepreneurship in poultry sectors • Three Skill development trainings were conducted for students after its procurement
31	Bowl Chopper	1	₹ 3,57,000.00	College of Veterinary Science, Khanapara	For hands on training on processing, packaging and storing of Pork and products
32	Stainless steel vertical tables	1	₹ 84,000.00	College of Veterinary Science, Khanapara	For hands on training on processing, packaging and storing of Pork and products
33	Lab Fish	1	₹ 4,85,745.00	College of Veterinary Science, Khanapara	For hands-on training of students for preparation of processed poultry products and value addition
34	Barbeque Grill set	1	₹ 31,500.00	College of Veterinary Science, Khanapara	For hands-on training of students for preparation of processed poultry products and value addition
35	Digital Haugh Tester	1	₹ 1,68,000.00	College of Veterinary Science, Khanapara	For hands-on training of students for preparation of processed poultry products and value addition
36	SS Cabinet	1	₹ 99,750.00	College of Veterinary Science, Khanapara	For carrying poultry, chicks and products
37	Meat mincer and mixer	1	₹ 1,44,900.00	College of Veterinary Science, Khanapara	For hands-on training of students for preparation of processed poultry products and value addition
38	Bowl chopper with accessories.	1	₹ 1,81,650.00	College of Veterinary Science, Khanapara	For hands-on training of students for preparation of processed poultry products and value addition
39	Sausage filler	1	₹ 1,89,000.00	College of Veterinary Science, Khanapara	For hands-on training of students for preparation of processed poultry products and value addition

40	Brooder	1	₹ 1,11,227.00	College of Veterinary Science, Khanapara	For hands-on training of students for preparation of processed poultry products and value addition
41	Auto Clave	1	₹ 2,49,900.00	Department of Plant Pathology, CA (Bio-pesticide Unit), AAU	For sterilization
42	Laminar work flow work station	1	₹ 1,17,600.00	Department of Plant Pathology, CA (Bio-pesticide Unit), AAU	Dedicated sterile working desk for the training
43	Centrifuge	1	₹ 3,48,600.00	Department of Plant Pathology, CA (Bio-pesticide Unit), AAU	Required for harvesting microbial bio-agent's cells
44	Ribbon Blender	1	₹ 74,340.00	Department of Plant Pathology, CA (Bio-pesticide Unit), AAU	Required for large volume mixing and blending of carrier materials with inoculum and adjuvants
45	Tethered shooting setup	1	₹ 1,96,350.00	Department of Plant Pathology, CA (Bio-pesticide Unit), AAU	Required for real time projection of demonstration work on large monitor for better visibility
46	Wireless classroom audio system with microphone	1	₹ 68,040.00	Department of Plant Pathology, CA (Bio-pesticide Unit), AAU	Required to enhance audibility during training and interaction sessions
47	UV Spectrophotometer	1	₹ 3,75,165.00	Department of Plant Pathology, CA (Bio-pesticide Unit), AAU	Required for quality control lab of bio-inputs
48	Cooking Vat	1	₹ 3,39,150	College of Veterinary Science, Khanapara	
49	Patty Making Machine	1	₹ 6,24,750	College of Veterinary Science, Khanapara	
50	Vacuum Tumbler	1	₹ 3,41,250	College of Veterinary Science, Khanapara	
Total			₹ 1,80,00,671.00		

Technical Progress

1. Workshops conducted

i. Interface workshops: 4

Sl. No.	Topic	Location	Duration	Target Group	Number of Beneficiaries	Expected benefits
1	AAU Industry Interface	AAU, Jorhat	1 day	Students and Faculty	144	<ul style="list-style-type: none"> Interaction between entrepreneurs and students motivated students to become entrepreneurs in future. Industrialists showed keen interest on the technologies developed in AAU.
2	AAU Industry Interface	College of Veterinary Science, AAU, Khanapara	1 day	Students and Faculty	125	
3	Interface and Placement Drive	AAU, Jorhat	1 day	Students	12	Twelve jobs were offered to the students for the post of Executive Trainee under NSPDT, Bhopal
4	Career Orientation Workshop	AAU, Jorhat	1 day	Students	87	Students were guided on various job aspects in the agriculture and allied sectors
Total					368	

ii. Skill development workshops: 8

Sl. No.	Topic	Location	Duration	Target Group	Number of Beneficiaries	Expected benefits
1	Workshop on Nanotechnology	AAU, Jorhat	1 day	Students	22	Training on application of Nanotechnology was demonstrated to the students
2	Workshop on Artificial Intelligence	AAU, Jorhat	10 days	Students	30	<ul style="list-style-type: none"> • Graduates with skilled in use of AI tools • Beneficial in farmers' field • Tools included drones, hyper-spectral imaging techniques, IOT sensor device, etc., helps in detecting probable diseases in farmers field
3	Documentary Film Making	AAU, Jorhat	10 days	Students	15	<ul style="list-style-type: none"> • Various aspects of knowledge on audio-visual aids & film making helped the students to think for career options in this area • Students became aware of the technicalities involved in making feature film, documentary.

4	Skill development training programme on 'Decorative candle making'	College of Community Science, AAU, Jorhat	7 days	Students	25	<ul style="list-style-type: none"> • Students of Community Science showed keen interest in the techniques employed in making candles. • Development of entrepreneurial skills
5	Lectures series on entrepreneurship development in Textiles and Apparel Designing	College of Community Science, AAU, Jorhat	2 days	Students	261	Students were motivated in taking up entrepreneurship in textile and designing sectors
6	Skill in Handling and Management of Agrochemicals and their impact on Health and Environment after 75 years of Independence	AAU, Jorhat	14 days	Students	200	<p>Students and faculty acquainted with use of chemicals in Agriculture</p> <p>Hands on training on use of Agrochemicals</p>
7	Life skill education	College of Community Science, AAU, Jorhat	3 days	Students	100	UG students trained on life skills like creativity, critical thinking, communication, cooperation, teamwork and resilience to encourage logical decision-making and innovations among students
8	Sensitization on entrepreneurship development for agro-based industries	AAU, Jorhat	5 days	Students	100	Entrepreneurship development for students on setting up agro based industries
Total					753	

iii. Soft Skill Workshops: 9

Sl. No.	Topic	Location	Duration	Target Group	Number of Beneficiaries	Expected benefits
1	Soft Skill Workshop (Offline)	AAU, Jorhat	6 days	Students	88	Improvement of soft skills related to personality development and mental fitness
2	Soft Skill Workshop (Offline)	College of Fisheries Science, AAU, Raha	3 days	Students	71	
3	MiNDFit Workshop for Skills Development using EXA based Therapy (Offline)	AAU, Jorhat	3 days	Students	36	Helped in personality development and mental fitness of students
4	Personality development training by Director of CommuniCare, Pune (Online)	AAU	4 days	Students	95	<ul style="list-style-type: none"> • Helps in counselling the students for overcoming their stage fear. • They can excel in interviews. • Time management
5	Personality development training by CEO, SMART Series, Bangalore (Online)	AAU	6 days	Students	100	
6	Personality development training by CEO, Yuvaan Skill Advisory (YSA) (Online)	AAU	3 days	Students	120	

7	Personality development training by Director of CommuniCare, Pune	AAU	8 days	Students	100	
8	Personality development training by CEO, Yuvaan Skill Advisory (YSA)	AAU	6 days	Students	100	
9	Online training on 'Enhancement of communication Skills through UPSKILL' from Cambridge University.	AAU	9 days	Students	50	Communication skills upliftment of the students
Total					760	

iv. Entrepreneurship development workshops: 9

Sl. No.	Topic	Location	Duration	Target Group	Number of Beneficiaries	Expected benefits
1	Poultry Husbandry and Meat Processing	College of Veterinary Science, AAU, Khanapara	15 days	Students	38	Motivated the students immensely to take up entrepreneurship in the poultry sector

2	Pig production and pork processing	College of Veterinary Science, AAU, Khanapara	10 days	Students	31	Students were motivated in taking up entrepreneurship on pig production and pork processing in future
3	Entrepreneurship training on Bakery	College of Community Science, AAU, Jorhat	4 days	Students	10	Some trained students took up bakery for entrepreneurship development after the completion of the training.
4	Student READY programme in NEATE Hub.	AAU	8 weeks	Students	300	Entrepreneurial skill development of the students
5	Workshop on 'Industrial and Safety/Environmental Requirement to start DPR on Poultry Enterprise'	College of Veterinary Science, AAU, Khanapara	1 day	Students	48	
6	Skill Development training programme on pig production and pork processing for entrepreneurship development	College of Veterinary Science, AAU, Khanapara	3 days	Students	20	Students learnt about scientific slaughtering of pig, breeding stock selection.
7	Skill Development training programme on pig production	College of Veterinary Science,	3 days	Students	20	Students were acquainted on the preservation of meat and meat products

	and pork processing for entrepreneurship development	AAU, Khanapara				
8	Skill Development training programme on pig production and pork processing for entrepreneurship development	College of Veterinary Science, AAU, Khanapara	3 days	Students	20	Hands on training on fabrication of carcass were given to the students
9	Skill Development training programme on pig production and pork processing for entrepreneurship development	College of Veterinary Science, AAU, Khanapara	3 days	Students	20	Training on preparation of value added pork products was given to the students
Total					507	

2. Internship of students

Type of event	Title of event	No. of students participated	Host AU / Institute	Event duration (days)	Learnings	Total Expenditure (In Rupees)
National training	Internship on Floriculture	32	Daffodil Nursery, Bherakuchi, Kamrup, Assam	20	Acquired hands-on training on floriculture	26,10,000

Internship on Organic Agriculture	27	Spread NE, Sonapur, Assam	20	Acquired hands-on training on organic farming and zero budget edible food production
Internship on Integrated farming system	30	Pabhoi Greens, Pabhoi, Assam	20	Acquired hands-on training on integrated farming system
Internship on CADD	6	CADD Centre, Kolkata	15	Acquired hands-on training on Computer Aided Design
Internship on APTECH	4	Aptech Computer Education Centre, Kolkata	15	Acquired hands-on training on Aptech programme
Internship on Food processing	5	Indian Institute of Food Processing Technology, Guwahati	13	Acquired hands-on training on food processing technology
Internship on Textile and apparel designing	7	Weavers' Service Center, Khanapara, Guwahati	15	Acquired hands-on training on Textile and apparel designing
Internship on Fisheries	16	DCFR, Bhimtal, Uttarakhand	15	Acquired hands-on training on Cold water fisheries
Total	127			

3. Exposure training

Type of event	Title of event	No. of students participated	Host AU / Institute	Event duration (days)	Progress	Total Expenditure (In Rupees)
International Training	Exposure in Organic Agriculture in Switzerland	20	ETH, Zurich (World Food Science Centre), Switzerland	15	Completed. Students learnt broadly about organic agriculture, <ul style="list-style-type: none"> a. Production b. Certification c. On farm visits d. Industry visits e. Group activities 	1,97,98,188
	Exposure training on Pig Husbandry	10	ITCPH, Lipa City, Batangas, Philippines	20	<ul style="list-style-type: none"> a. Pig husbandry b. Processing c. Auction market 	

					<ul style="list-style-type: none"> d. Health and hygiene in pig husbandry e. Processing industries f. IFS 	
	Exposure in Innovation in Food Production	17	Asian Institute of Technology, Bangkok, Thailand	20	<ul style="list-style-type: none"> a. Food processing b. Beverage making c. Fish processing d. Meat processing e. Industrial Visits f. Visit to Bakeries 	
	Exposure in Precision Farming and Farm Mechanization	13	IOWA State University, Ames, USA	15	Students learnt about precision agriculture and mechanization in USA	

	Research, extension, Production and Industry in Plant Agriculture in the USA	4	University of Nebraska Lincoln	60	Students learnt about agriculture, research and farm mechanization in USA.	69,65,999
	Research, extension, Production and Industry in Animal Agriculture in the USA	6	University of Nebraska Lincoln	60	Ongoing	
	Integrating agriculture, food, nutrition and health: a real-life experiential learning approach	15	University of Central Lancashire, UK	90	Students appeared for VISA interview. Awaiting for approval.	
Total		85				

4. Faculty Development (International Training)

Completed trainings: 12

SI No.	Name	Faculty	Area of Training sought	Host Institute	Duration (months)	Total Expenditure (In Rupees)	Achievements
1.	Mr. Dipanjan Kashyap	Agriculture	Sustainable resource management	Rutgers University, USA	3	73,49,287	During the period of training, he was adjudged as Best researcher, Best oral paper presenter and Young Researcher Award, 2019-20 in International Conference on Agriculture, Biological and Environmental Sciences in Athens, Greece
2.	Dr. Robin Chandra Boro	Agriculture	Climate change and management in agriculture	University of California, Davis, USA	3		Published 2 papers recently- 1. Samim Dullah, Dibya Jyoti Hazarika, Gunajit Goswami, Tanushree Borgohain, Alokesh Ghosh, Madhumita Barooah, Ashok Bhattacharyya and Robin Chandra Boro. Melanin production and laccase mediated oxidative stress alleviation during fungal-fungal interaction among basidiomycete fungi. IMA Fungus (2021) 12:33 https://doi.org/10.1186/s43008-021-00082-y

						<p>2. “Cinnabarinic acid from <i>Trametes coccinea</i> fruiting bodies exhibits antibacterial activity through inhibiting the biofilm formation”, has been accepted for publication in Archives of Microbiology.</p>
3.	Dr. Ananta Madhab Baruah	Agriculture	Protein and Enzyme Purification and Characterization	Carleton University, Ottawa, Canada	1	<ul style="list-style-type: none"> • Under his mentorship, a research project on “Commercial Exploitation of Caffeine from Tea Dust and Pruning Litters” had been sanctioned. Three students AAU is working in the project under his guidance • Formulate and obtained one DBT sponsored project (where he is working as PC &PI), in formulation of one collaborative training programme with Carleton University
4.	Dr. Bhagawan Bharali	Agriculture	Bio-fuel production	Michigan State University, USA	15 days	<ul style="list-style-type: none"> • He has been selected as one of the working partners of a multinational, multi-institutional and multi-disciplinary project of about \$15 million of Michigan State University. The proposed project is on to develop rural sustainability in the Hindu Kush Himalayan Region. AAU as one of the partner should be eligible to obtain 1.4 m USD.

						<ul style="list-style-type: none"> • Research project entitled 'Exploration of Microalage for sustainable biodiesel production in changing environment' has been submitted to DBT in the month of January 2022, in collaboration with the department of Bio-engineering and Technology, Gauhati University.
5.	Dr. Palash Deb Nath	Agriculture	Bioinformatics	Washington State University, USA	1	<p>Developed and submitted a Ph.D. research proposal to Netaji Subhas Bose International fellowship program, ICAR for his M Sc student on a topic "Resistance breaking strains of tospoviruses: Characterization of the interplay between viral and host proteins" in collaboration with his Washington State University, USA collaborator Dr Hanu R Pappu. The proposal is under consideration. Result awaiting.</p>
6.	Dr. Durlav Prasad Bora	Veterinary	Molecular Virology	Ghent University, Belgium	3	<ul style="list-style-type: none"> • Submitted and acquired three research projects funded by DBT, Govt of India which are being implemented at AAU w.e.f.01/04/2021. • Associated with one DBT funded research project on African Swine

							Fever (ASF), an emerging exotic disease of pigs.
7.	Dr. Pankaj Deka	Veterinary	Multi drug resistant bacteria in livestock and concept of thermostable vaccine development	Murdoch University, Australia	3		<ul style="list-style-type: none"> ● Development of Thermostable immunogeic formulation against Newcastle Disease of poultry ● Submitted Research Project Proposal titled "Mitigating antimicrobial resistance through bacteriophage and recombinant endolysin formulations against Salmonella spp. and E.coli in poultry and pigs" under ICAR-NASF call in collaboration with ICAR-NRC Equine, Hisar.
8.	Dr. Masuk Raquib	Veterinary	Food safety	Oklahoma State University, Oklahoma, USA	3		Training programmes for undergraduate students have been initiated for entrepreneurial and skill development on hygienic slaughtering and pork processing following all the food safety norms. In addition, the undersigned is regularly involved in slaughter house operations and development of value-added safe pork products to meet the customer's requirements.

9.	Dr. Dwijen Kalita	Veterinary	Advanced Diagnostic Imaging Techniques in Small Animals	Cornell University, USA	1	Initiated the process to get one ultrasonography machine from IOC under their CSR initiative. The machine has been installed and training of students is being conducted.
10.	Dr. Dhurba Jyoti Kalita	Veterinary	Auto, Allo and Xenogenic Stem-cells Therapy for treatment of different diseases of swine /Equine	Ohio State University, USA	1	Prepared one project on "Exploration of allogenic, Xenogenic Stem-cells Therapy for treatment of Canine atopic dermatitis" and present in TCM of the University. Committee approved it for submission to external funding agency.
11.	Dr. Nandita Bhattacharyya	Community Science	Ergonomics	University of California, Davis, USA	1	<ul style="list-style-type: none"> • With the learning experiences in USA, guided students in their research work • Formulated a course module on 'Kinesiology and Health' to be offered by the University as Diploma course
12.	Dr. Mamoni Das	Community Science	Food Processing	IOWA State University, USA	1	<ul style="list-style-type: none"> • Developed interest in protein isolates and its application in food industry • Took the learnings as area of research for Ph.D. student on the topic entitled "Characterization of

							<p>the functional and nutritional properties of mulberry silkworm (<i>Bombyx mori</i>) pupae protein” with the objectives to optimize protein extraction and analyse its invitro and invivo efficacies</p> <ul style="list-style-type: none"> • Prepared 6 months diploma course module on kinesiology and health for consultancy services focussing on work physiology and health promotion
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Undergoing faculty international trainings: 9

Sl. No.	Name	Faculty	Area of Training sought	Host Institute	Duration (months)	Total Expenditure (In Rupees)
1.	Dr. Bikram Borkotoki	Agriculture	Carbon Sequestration	Washington State University, USA	6	93,75,893
2.	Ms. Bhaswati Sarmah	Agriculture	Investigating the biosynthesis of medicinally important anti-herbivory compounds in plants	Cornell University, Ithaca, USA	5	
3.	Dr. Purabi Kaushik	Veterinary Science	Role of Staphylococcus aureus in mastitis: Its Detection and Control	University of East London, UK	6	

4.	Dr. Prasanta Neog	Veterinary Science	Crop simulation models for studying climate variability	University of Florida Gainesville, Florida	3
5.	Dr. Sutopa Das	Veterinary Science	Molecular and Immunological Studies on the interaction of bovine conglutinin with <i>Mycobacterium bovis</i> /BCG	Brunel University, UK	3
6.	Dr. Nikhil Chandra Nath	Veterinary Science	North-East Indian medicinal plants for the identification of compounds responsible for antibacterial properties against methicillin resistance <i>Staphylococcus aureus</i> and anticancer activities against skin and breast cancer cell lines	University of East London, UK	6
7.	Dr. Arnab Narayan Patowary	Fisheries Science	Statistical Data Analysis with relevance for Agriculture and Climate Change	Madden School of Business Le Moyne College, USA	6
8.	Dr. Rajdeep Dutta	Fisheries Science	Dynamics of Harmful Algal Blooms in aquatic ecosystems	School of Fisheries, Aquaculture & Aquatic Sciences, Auburn University, USA	6

9.	Dr. Prabitra Kumar Saharia	Fisheries Science	Development of Insect Base Additive to enhance the Utilization of Farm made Feeds for Increasing the Production of Nile tilapia (<i>Oreochromis nilotica</i>) and White leg shrimp (<i>Litopenaeus vannamei</i>)	Idaho University, USA	3	
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5. Short Visit and Seminar (14 Numbers)

Sl. No.	Name	Faculty	Conference/Congress Attended	Country	Total Expenditure (In Rupees)
1.	Dr. Aditi Smith Gogoi	Agriculture	1st International Congress on Cocoa Coffee and Tea Asia	China	14,35,866
2.	Shri Diganta Kumar Bora	Agriculture	1st International Congress on Cocoa Coffee and Tea Asia	China	
3.	Dr. Deben Sapkota	Veterinary Science	International Poultry Symposium	Nepal	

4.	Dr. Sayanika Borah	Community Science	International Conference on Food Security and Sustainable Agriculture (IFSA-2018)	Thailand
5.	Dr. Arnab N. Patowary	Fishery Science	International Conference on Applied Probability and Statistics (CAPS-2019)	Vietnam
6.	Dr. Bhagawan Bharali	Agriculture	629th International Conference	Hanoi, Vietnam
7.	Dr. G Mahato	Veterinary Science	International Workshop	Texas, North America
8.	Dr. M Hazarika	Veterinary Science	International Conference on Veterinary and Animal Sciences	Malaysia
9.	Dr. Manoj Kumar Kalita	Agriculture	International Phytoplasmologist working group (4th IPWG)	Spain
10.	Dr. Manoj Kumar Sarmah	Agriculture	International Conference on Molecular and Genetic Engineering	Melbourne, Australia
11.	Dr. Chandan Hazarika	Agriculture	3rd International Conference on Food and Biotechnology	Bali, Indonesia
12.	Dr. Devoiyoti Dutta	Veterinary Science	International Conference on Advances and Scientific Merits in Biotechnology and Health care	Dubai, UAE
13.	Dr. Binod Kalita	Fishery Science	2nd International Scientific Conference in Aquatic Animal Epidemiology Aquaepi 2019	Thailand

14.	Dr. Tulika Borah	Community Science	ACED-SEANES 2020 (Was adjudged with 'Best Paper Award' in the conference)	Philippines	
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6. Faculty Diversity: Professors of National and International Repute were invited for imparting lectures on advances in their respective field of studies to the students and faculty of AAU

Sl. No.	Name	Topic	Target Group	Number of Beneficiaries
1	Dr. R.L. Agarwal, Retd. Prof., GBPUAT, Pant Nagar	Organic Agriculture	Students	250
2	Dr. M.K. Bhattacharyya, Prof., IOWA State University, USA	Aspects of molecular genetics and Plant Breeding	Students	300
3	Dr. B.D. Singh, Prof. (Retd.), School of Biotechnology, BHU	PBG & Biotechnology	Students	225
4	Dr. V. Sudershan Rao, former Deputy Director from National Institute of Nutrition, Hyderabad	Broad aspects of Food Safety	Students	200
5	Dr. N T Yaduraju (Director, ICAR-Directorate of Weed Research, Jabalpur)	Weed management and modern crop production	Students	200
6	Dr. Sanjib Bhuyan, Associate Professor, Rutgers University	Avenues for higher education abroad for students of	Students	112

		Agricultural and Biological Sciences		
				1287

Road Map for extension of IDP, NAHEP, AAU

Sl. No.	Head	Fund allocated (in lakhs)	Fund utilized (in lakhs)	Balance (in lakhs)	Activity targeted	Achieved	Pending	Road Map
1	Office Equipment	10.00	8.91	1.08	Purchase of office equipments	All procured	None	Unutilized fund of Rs. 1.08 lakhs to be used for procuring of LED Projector(portable) resolution of 1080 pixel if permitted. This will be utilized for projecting presentation in meetings, workshops and classrooms. Procurement to be done within 3 months from the approval.
2	Lab Equipment	199.69	180.00	19.69	Purchase of Laboratory equipments	All sanctioned items procured	All are expected to be installed by 31/03/2022 (Have been delivered)	Purchase of Agricultural drone with multispectral camera and spraying system for granules/ liquid and live processing hardware and software- Rs.10 lakhs as per DoA & FW and MoA & FW

								Purchase of Soil penetrometer for soil compactness estimation- Rs.9 lakhs within 5 months from the approval
3	Computer and peripherals	251.60	224.66	26.93	127	All sanctioned items procured	None except a server which was sanctioned later on due to price escalation.	Unspent balance amount of Rs. 26.93 lakhs may be utilized to procure 40 computers for libraries and language lab within 4 months from the approval.
4	Furniture & Fixtures	10.00	9.80	0.195	Furniture for office and modules under NAHEP	All sanctioned items procured	None	Unspent balance of Rs. 19,569 to be utilized for purchase of chairs to be used in placement cell within 1 month from the approval.
5	Books & Journals	35.00	35.00	0	E-books procurement	Procured	None	No unspent balance

6	Civil Works	156.30	143.29	13.00	Renovations of classrooms, factories, farmhouse etc.	All activities completed	None	Unspent balance of Rs. 13 lakhs may be utilized for repair & renovations of irrigation / drainage channel of experimental fields across the colleges of AAU within 5 months from the approval
7	International training	272.80	233.13	40.00	25 faculty members	21 faculty members has completed the training	4	Amount of Rs. 40 lakhs will remain unspent. Sanctioned amount of Rs. 100 lakhs is yet to be released hence, it will be possible to send atleast 14 faculty members for international training within February,2023
8	Short visit/ Seminar	16.00	14.35	1.64	Presentation of seminars in international level	14	None	Rs. 1.64 lakhs will be spent for attending atleast 3 international seminars abroad by the faculty members within December,2022..

9	Meeting and Workshop	24.50	24.33	0.16	Holding of Entrepreneurship workshops	35	None	To hold entrepreneurship workshop (Rs. 16,402) with the amount unspent within 2 months.
10	Consultancy	30.00	1.00	29.00	Consultations for various NAHEP activities	One consultant was approved for 12 months	Not required at AAU level	Unspent amount of Rs. 29 lakhs may be allowed to spend for strengthening the placement cell of AAU (Appendix 1) within 6 months from the approval.
11	Travel Expenses	8.00	6.17	1.80	To monitor activities			Unspent balance of Rs.1.80 lakhs will be spent throughout the project period for visiting the colleges by PI and other members, statutory audit purpose and travel of visitors.
12	Contractual Services	136.49	122.15	14.33	To conduct office activities, financial activities and assisting works in 7 modules of NAHEP	9 persons engaged	None	With the available fund one accounts assistant and one office assistant will be engaged for 12 months w.e.f. 1 st April,2022 to carry out

								financial and official activities. This will cost Rs.6.76 lakhs . Five more JRF will be engaged for five months w.e.f 1 st April to look after the activities related to the project. This will cost around Rs.7.57 lakhs Three JRF's have been already terminated w.e.f April.
13	Operational Costs	701.58	494.17	75	Student development: 85 students	70 students has undergone the foreign training	15 students	One batch of 12 students may be deputed for exposure visit with the balance amount of Rs.75 lakhs within August to December,2022 after the approval
				50	Internship: 130 students	127 students has completed	None	Unspent of balance Rs. 50 lakhs may be utilized for two teams of students within the period of 4 months from the approval

				30	Adjunct Professor	4 completed 1 ongoing	None	Unspent balance amount of Rs. 30 lakhs will be spent for obtaining service of atleast 1 visiting professor within February,2023 and for organizing workshops and trainings on entrepreneurship(3 nos.) , skill development (4 nos.) and soft skill (2 nos.) within December,2022.
					Entrepreneurship & Skill development:	15 organized	None	
14	Institutional Charges	42.31	42.31	0				Remaining balance of Institutional charge may be disbursed.

APPENDIX 1

Proposal for strengthening of the Placement cell of Assam Agricultural University

Sl. No.	Items required	Quantity (nos.)	Budget (in lakhs)	Justification
1	CCTV Camera with Mic system	8	7.00	Necessary for group discussion of the students in the conference room. To monitor, evaluate and smooth functioning of the activities to be held in the conference room.
2	Table	3	0.60	
3	Chair	10	0.30	
4	Air Conditioner	4	2.00	
5	Computer	2	1.50	
6	Audio & PS system	--	3.00	
7	Interconnected Sound system	--	2.00	
9	Repairs and renovation	--	5.00	
10	Total		21.40	

COURSE CURRICULUMS OF THE MODULES IMPLEMENTED UNDER IDP, NAHEP, AAU

CERTIFICATE COURSE ON BAKERY

DEPARTMENT OF FOOD AND NUTRITION

COLLEGE OF COMMUNITY SCIENCE, AAU

Introduction: Bakery products are the most important engineered foods in the world. Bakery goods are increasingly becoming popular due to characteristics of ready to eat, convenience, cost competitiveness, wide product range, advantages of nutrition and adequate shelf life. The growing consumer preferences for such kind of bakery products has further attributed towards large production of bakery goods. Bakery industry is one of such category of food industry where survival rate is quite high. In recent years the increased consumer awareness has called for healthy bakery product choices which also contributed towards expanding bakery industry. Thus there is tremendous potentiality of opting bakery as career opportunity for the youth with added advantages of self-employment.

Objectives of the course:

- i) To acquaint the trainees with basic aspects of baking.**
- ii) To develop entrepreneurial skill among the trainees.**
- iii) To guide in project preparation suitable for developing entrepreneurship**

Career opportunity: The proposed certificate course will prepare the student for a variety of career opportunities including Professional Bakers, Bakery entrepreneur, Bakery expert as trainer/consultant, employment in various hospitality and catering chains.

Employment outlook: Bakery is one of the category of food industry which is ever growing. Due to increasing demand for convenience food product, coupled with shift in eating habits and better transport facilities, the bakery product demand is increasing. Therefore, there is a growing demand for quality baked goods in the line of traditional/ conventional as well as designers' health food. So there are ample opportunities for income generation in the bakery industry.

Duration: 3 Months

Eligibility Qualification: Under Graduate students of Community Science

A. Courses with credit hours:

Sl. No.	Course number	Credit hours	Total credit hours	Title of the course
1	FNCCB (I)	2+1	3	Introductory baking
2	FNCCB (II)	1+2	3	Biscuits and cookies
3	FNCCB (III)	2+4	6	Yeast raised products
4	FNCCB (IV)	1+3	4	Cakes and decorative bakery

B. Course outline: Theory

1. Course No FNCCB (I) Credit hours (2+1)

Course outline: Introduction to Bakery - Bakery equipment - Glossary of baking terminology - Functions of Ingredients used in bakery - tools and technique used in baking - Different types of packaging materials - bakery sanitation and personal hygiene -Cost accounting-pricing and marketing strategies - Importance of Bakery Industry - Project planning

Practical: Introduction to Bakery equipment and Ingredients - Techniques of Weight and measurements - Techniques of packaging and labeling - Care and maintenance of equipment and accessories - Maintenance of hygiene and sanitation in the bakery plants - Cost accounting-pricing and marketing strategies - Project planning and preparation

2. Course No FNCCB (II) Credit hours (1+2)

Course outline: Types of biscuits and cookies - Ingredients for biscuit making - Techniques of biscuit making- dough type or cut out cookies - bagged out or spooned cookies varieties - Packaging and storage

Practical: Techniques of biscuit making and production of varieties of biscuits - Quality evaluation - Cost calculation - Packaging

3. Course No FNCCB (III)

Course outline: Different types of yeast raised products- breads, buns and rolls - Basic operation in bread making process- Variety rolls- Bread faults and remedies- Packaging

Practical: Testing of raw materials- Mixing methods of yeast raised products - Preparation of buns- Preparation of breads- Preparation of variety roles- Quality evaluation- Cost calculation and packaging

4. Course No FNCCB (IV)

Outline: Functions of ingredients in cake making- shortened cake- sponge cake- Fruit cake- Cup cake and Muffins- Common cake faults and their remedies- Icing

Practical: Preparation of shortened cake- sponge cake- Fruit cake- Cup cake and Muffins- Preparation of fancy bakery products- doughnut, pizza and tarts -icing technique and decoration of cakes for special occasions

COURSE CURRICULUM FOR HANDS-ON TRAINING ON BIOFERTILIZER UNDER IDP-NAHEP

1. Title of the Programme: Production of Biofertilizers and Entrepreneurship Development

2. Brief Introduction of Biofertilizers and its importance in sustainable agriculture:

Biofertilizers are microbial inoculants consisting of living cells of microorganisms like bacteria algae and fungi alone or in combination which may help in increasing the crop productivity by way of helping in the biological nitrogen fixation solubilization of insoluble fertilizer materials, stimulating plant growth or in decomposition of plant residues. Different Biofertilizers produced in Assam includes Rhizobium, *Azotobacter*, *Azospirillum*, Phosphate solubilizing bacteria, Potash solubilizing bacteria, Zinc solubilizing bacteria and Blue Green Algal Biofertilizer.

Advantages of Biofertilizer:

- Enhance the nutrient availability to crop plant
- Impart better health to plants and soil
- Enhancing crop yields in a moderate way
- Natural pollution free ecofriendly method
- Used to give sustainability to production
- Integral component of organic farming

In modern agriculture, abused input of chemical or synthetic fertilizers is still on rise and the adverse effects, in the long run, has been one of the key reason in causing imbalance of the soil ecosystem, which in turn has impacts in reducing crop yield and productivity. However, in recent years, the growing adoption of organic agriculture has also gained much interest towards the effort targeted to sustainable agriculture. Biofertilizers have come a long way from being seen as a supplement to chemical fertilizers to their current position as nutritional aids, renewable source of plant nutrients, promote soil health and have become a vital constituent in integrated crop and soil management.

3. Scope for Entrepreneurship:

In the context of importance biofertilizer in agriculture, the course will be beneficial to the youth for establishment of small scale biofertilizer production units and popularization of biofertilizer usage. Being a low cost viable technology, the training will open the scope for entrepreneurship development.

Course Content for hands-on training on Biofertilizer under IDP-NAHEP

Course No	Course Content	Credit Hours
Biofert 01	Isolation and characterization of Beneficial Biofertilizer Microorganisms 1.1 : Azospirillum 1.2 : Azotobacter 1.3 : Phosphate solubilizing Bacteria 1.4 : Rhizobium 1.5 : Blue Green Algae (Cyanobacteria)	0+4
Biofert 02	Mass Scale Production of Beneficial Biofertilizer Microorganisms 2.1: Azospirillum 2.2: Azotobacter 2.3 : Phosphate solubilizing Bacteria 2.4 : Rhizobium 2.5 : Blue Green Algae (Cyanobacteria)	0+4
Biofert 03	Enriched Compost Production Technology	0+5
Biofert 04	Azolla production and Mass cultivation of Azolla	0+3
Biofert 05	Biofertilizer Entrepreneurship Development	0+4
Total Credit Hours:		20

COURSE CURRICULUM ON BIOPESTICIDE PRODUCTION TECHNOLOGY

(a) Objective:

To impart technical know-how and skill on biopesticide production technology for entrepreneurship development

(b) Expected learning outcomes:

- i. Enhanced technical knowledge and expertise on biopesticide production technology through hands on experience
- ii. Enhanced employability of the trained manpower in the area of biopesticide production technology.
- iii. Entrepreneurship development.

(c) Duration: One year comprising of two semesters of six-month duration each.

(d) Course content:

Unit No.	Course No.	Title	Contents
Theory (Semester I)			
1.	BPT 001	Introduction to microbial biopesticide	<ul style="list-style-type: none"> • Introduction and History of biopesticide • Biological pest control for organic agriculture/ environment friendly agriculture • Biopesticide Industry in India • Microbial bio control agents (MBCAs) used for production of disease and pest management • Mechanisms of action of microbial bioagents • Introduction & machineries of biopesticide laboratory
2.	BPT 002	Basic insectary facilities and Characteristics of parasitoids and predators	<ul style="list-style-type: none"> • Basic insectary facilities and equipment to promote biological control • Characteristics of important order and families of parasitoids • Characteristics of important order and families of predator

3.	BPT 003	Biological control of plant parasitic nematodes (PPN)	<ul style="list-style-type: none"> • History and Introduction to nematode biocontrol • Different kinds of Biocontrol agents (BCA) used against PPNs • Sources of BCA • Identification of nematophagous fungi and bacterial BCAs • Mode of action of BCAs against nematodes
Theory (Semester II)			
4.	BPT 004	Production of microbial biopesticides	<ul style="list-style-type: none"> • Guidelines for establishment of a biopesticide production unit • Production protocols for microbial biopesticides • Quality assessment of microbial biopesticides • Biological control of important pest & diseases of crop plants • Method of applications of microbial biopesticides • Precautions and Handling Procedures • Protocol for registration of biopesticides in India
5.	BPT 005	Mass rearing of entomological bioagents	<ul style="list-style-type: none"> • Mass rearing techniques of factitious hosts of predators • Mass rearing techniques of important predators • Collection, preservation, shipment of biotic agents and storage of natural enemies • Methods of releasing parasitoids and predators • Natural enemies of insect pests in rice, vegetable, pulse and oilseed ecosystem

6.	BPT 006	Mass production of BCAs against PPN	<ul style="list-style-type: none"> • Mass production of BCAs • Method of application • Field evaluation • Quality control in biopesticides against PPNs
7.	BPT 007	Biopesticides as business opportunity	<ul style="list-style-type: none"> • Global biopesticide market • Future trend of Biopesticide Industry • Different biopesticides manufactured by AAU and their uses • Development of projects for sanction of bank loan
Practical (Semester I)			
8.	BPP 001	Production of microbial bioagents –I	<ul style="list-style-type: none"> • Preparation of culture media • Isolation of bioagent from soil • Isolation of Endophytes • Purification of fungal/ bacterial antagonists • Microscopic study of different microbial bioagents • <i>In vitro</i> assay of compatibility test • <i>In vitro</i> assay of antagonistic test
9.	BPP 002	Mass production of entomological bioagents- I	<ul style="list-style-type: none"> • Basic insectary facilities and equipment for mass production of natural enemies • Identification of important order and families of parasitoids • identification of important order and families of predator • Mass rearing techniques of important host insects of parasitoids and predators • Mass rearing techniques of important parasitoids

10.	BPP 003	Mass production of bioagents against PPNs-I	<ul style="list-style-type: none"> • Isolation of BCAs • Identification and In vitro evaluation against some PPNs
Practical (Semester II)			
11.	BPP 004	Production of Microbial Biopesticide –II	<ul style="list-style-type: none"> • Production technologies of microbial bioagents based biopesticides • Quality assessment of biopesticides • Field evaluation of biopesticides against plant diseases
12.	BPP 005	Mass production of entomological bioagents- II	<ul style="list-style-type: none"> • Mass rearing techniques of important predators • Collection, preservation, shipment of biotic agents and storage of natural enemies • Methods of releasing parasitoids and predators • Natural enemies of insect pests in rice and cotton ecosystem • Field Trip for collection of natural enemies
13.	BPP 006	Mass production of bioagents against PPNs-II	<ul style="list-style-type: none"> • Mass production • Enrichment of BCAs for field application • Methods of application

Course Title: Commercial Floriculture and Value Addition of Flower Crops

Credit hrs : 5 (2 + 3)

Importance

Floriculture in India, is being viewed as a high growth Industry. Commercial floriculture is becoming important from the export point of view. The liberalization of industrial and trade policies paved the way for development of export-oriented production of cut flowers. There has been an increasing demand of cut and loose flowers in different religious and social functions as well as in decorating pandels and halls. Further the demand of value added products from flowers is increasing day by day in celebrating different religious and social functions. The new seed policy had already made it feasible to import planting material of international varieties. It has been found that commercial floriculture has higher potential per unit area than most of the field crops and is therefore a lucrative business.

Indian floriculture industry has been shifting from traditional flowers to cut flowers for export purposes. The liberalized economy has given an impetus to the Indian entrepreneurs for establishing export oriented floriculture units under controlled climatic conditions. Agricultural and Processed Food Products Export Development Authority (APEDA), is responsible for export promotion and development of floriculture in India.

It has been observed that the demand of flower and commercialization of flower cultivation in Assam and North East India have in recent time increased considerably. The production of cut flower and flower decorations have become established as a profitable business. It has been estimated that annual transaction in the flower markets of Guwahati amounts to 7 to 10 crores of rupees, out of which around 75% flowers come from West Bengal and Bangalore while the rest 25% comes from different locations of the state.

The soil and climatic conditions of Assam is suitable for cultivation of different commercial flower crops like Gladiolus, Tuberose, Marigold, Chrysanthemum, Gerbera, Anthurium, Orchid etc. One of the bottlenecks for commercial cultivation of flower crops in Assam is that the high quality planting material is not readily available and cost is also very high. If the farmers of the state take up cultivation of flower crops with quality planting material on commercial basis, progressively they will be able to raise their income, which in turn will have a positive impact on the economic growth of the state. These farmers are required to

produce quality planting material of selected flower crops for marketing as well as engage in flower cultivation to meet the ever increasing demand for cut and loose flower.

The growth of commercial flower cultivation will also contribute towards entrepreneurship development in flower business including flower decoration and flower trade. In order to accomplish the objectives, it is important to impart proper and adequate training in these aspects to generate skilled persons who will be professionally proficient in flower cultivation, preparation of value added products as well as in flower trade. This course has been specially designed for the agriculture/ horticulture students so that they get an exposure to this practical oriented course for developing expertise and required skill so that they may help interested flower growers and also get themselves engaged as successful entrepreneurs in flower cultivation and floral trade including value added products from flowers.

Theory

Scope and importance of commercial floriculture in India, production techniques of commercial flower crops like rose, marigold, tuberose, gladiolus, gerbera chrysanthemum, orchid, , anthurium carnation , crossandra, dahlia, bird of paradise and china aster for domestic and export market, production techniques of flowers and foliage filler materials growing of flowers under protected environments such as glass house, plastic house etc., postharvest technology of cut flowers in respect of commercial flower crops, dehydration technique for drying of flowers, production techniques for bulbous crops.

Prospect of value addition in national and Global scenario, production and export, types of value added products. Value added in loose flowers, garlands, veni , floral decoration, value addition in cut flowers

Practical

Identification of commercially important floricultural crops. Propagation practices in chrysanthemum, sowing of seeds and raising of seedlings of annuals. Propagation by cutting, layering, budding and grafting. Training and pruning of roses. Use of chemicals and other compounds for prolonging the vase life of cut flowers. Drying and preservation of flowers. Flower arrangement practices.

Flower arrangement, styles, Ikebana, morebana, free style, bouquets making, flower baskets, corsages, floral wreaths, garlands. Selection of containers and accessories for floral products and decorations, Hall decoration. Designing and arrangement – dry flower baskets, bouquets, pot pourri, wall hangings, button holes, greeting cards, wreaths, packing and storage.

Suggested Reading

A.K. Singh. 2006. *Flower crops, cultivation and management*. New India publishing agency, Pitampura, New Delhi.

T.K. Bose, L.P. Yadav, P. Patil, P. Das and V.A. Partha Sarthy.2003. *Commercial flowers*. Partha Sankar Basu, Nayaudyog,206, Bidhan Sarani, Kolkata-700006

S.K. Bhattacharjee and L.C. De. 2003. *Advanced Commercial Floriculture*. Aavishkar Publishers, Distributors, Jaipur (Rajasthan) India.

Dewasish Choudhary and Amal Mehta. 2010. *Flower crops cultivation and management*. Oxford book company Jaipur, India.

Randhawa, G.S. Amitabha Mukhopadhyay, 2004. *Floriculture in India*. Allied Publishers Pvt. Ltd:

Arora, J.S. 2006. *Introductory Ornamental Horticulture*. Kalyani Publishers, Ludhiana - 141 008.

Prof. Bhattacharjee, S.K. *Advanced Commercial Floriculture*. Aavishkar Publishers Distributors, Jaipur - 320 003

Prof. V.L. Sheela, 2008. *Flower for trade* . New India Publishing Agency, Pitampura, New Delhi-110088

**MODULE FOR KINESIOLOGY AND HEALTH FOR
CONSULTANCY SERVICES (6 Months Diploma course)**

COURSE TITLE: WORK PHYSIOLOGY AND HEALTH PROMOTION

Kinesiology is the scientific study of human movement, performance and function. Kinesiology applies the science of anatomy, physiology, ergonomics, biomechanics, health science, psychology and neuroscience to human movement and function. Kinesiology employs evidence based scientific research and assessment to assist in the prevention and rehabilitation of injury, lifestyle and work-related health problems and other physiological conditions, along with the enhancement of human performance, in environments such as work and sport. Health and kinesiology explore human health and movement to determine how to help people improve their quality of life for a more independent satisfying life. A vital part of the healthcare industry, nutritionists practice in areas such as health sciences, rehabilitation and counselling. Under this course health focuses on nutrition, human physiology, healthy eating and the dietary requirements to maintain wellness and fight disease. It helps in preventing disease & improves our understanding of the relationship between diet & working *health*. Kinesiology and health will produce leading experts in the fields of health, fitness and nutrition. The Health Promotion area prepares students to work as a wellness professional in corporate settings and to work as a health educator in community or government agencies.

The main objective of this course is

- To improve physical performance in work and activities of daily living;
- To oversee the implementation of individual health care plan
- Assessing workplace demands and provide workplace design services (ergonomics) in prevention and recovery from injury
- Providing support in rehabilitation and wellness management through nutritional guidelines.

Duration: Six months

Minimum essential Qualification: B.Sc or M. Sc in Home Science/Community Science/MBA

Courses

- Work physiology
- Worksite health promotion
- Human physiology
- Lifestyle disease management

Course content:

Unit No.	Course No.	Title	Contents
	WP	Work Physiology	
	Theory		
1.	WP 001	Introduction to work Physiology	Components of workers input; Physical Component; How work is done; Work, worker workplace interrelationship; Physical fitness; work capacity and fatigue
2.	WP 002	Neuro muscular system	Types of efforts, Muscles, muscular contraction; Muscle movements; Nervous system
3.	WP 003	Posture at work	Posture concept, posture evaluation
4.	WP 005	Anthropometry	Concept; requirement of anthropometric data; principles of anthropometric measurement while using database
5.	WP004	Functional design concept	Design concept; Compatibility between work, worker and workplace; Ergonomic factors in design-functional designing of workplace and equipment.
Practical			
Anthropometry and its statistical treatment for design applications; Methodologies for assessment of ergonomic cost of work in terms of physiological indices; Measurement of physical workload. Determination of physical fitness using various techniques; Measurement of posture and postural discomfort using different standards methodologies and software; Measurement of various environmental parameters, evaluation and effect on worker and work performance.			
Work-site health promotion (1+2)			
	WHP 0 01	Occupational Biomechanics and Occupational safety	Body Mechanics, occupational biomechanics; ergonomics in different occupation; Application of biomechanics for occupational safety; accident protection and release of stress; Use of SAMMIE (System for Aiding Man Machine Interaction Evaluation), CAD system in occupational de signs
	WHP 003	Work environment	Physical work environment-humidity, temperature, lighting requirement; noise.
5.	WHP 004	Risk factors at work	Task analysis and risk assessment at work places. Tools and techniques to assess and control hazards at work places.
	WHP 005	Cognitive Ergonomics	Human perception; Work load; work stress and management- Ergonomic Approach General approach and methods of ergonomic research

Practical
<p>Study of Occupational environment and Occupational stress in selected occupations; Work task analysis using ergo software - EVTA (Empirically Validated Task Analysis)/Ergo Master methodology with video for selected activities; Analyse the biomechanics applied in work performance.</p> <p>Identification of accident prone and stressful occupations suggesting remedial performance techniques; Application of EQ (Ergonomic Quality) and IQ (Industrial Quality) in the performance of occupational tasks; Application of Various research techniques in Ergonomics.</p> <p>Designing ergonomics studies and experiments, basic ergonomics methods and techniques. Assessment and design of physical workplace; Techniques used for workplace environment evaluation: Light, noise, humidity and temperature; Psychological parameters</p>

Unit No.	Course No.	Title	Contents
	KHP	Human Physiology	
		Theory	
1.	HP113 3(2+1)	Introduction to Human Physiology	Physiological process, structural and functional basis of human body, functions of brain, spinal cord, nerve impulse, sense organs, physiology of digestive system, respiratory system, kidney, liver. Circulatory system. Secretion and functions of endocrine system.
		Practical	Haematology, heartbeat, blood pressure measurements, respiratory quotient, inspiration, expiration
3.	HP112 2(2+0)	Human Nutrition	Relationship of nutrition to health, methods of measuring energy value of food, BMR, digestion, absorption and metabolism of carbohydrates, fats and proteins. vitamins and minerals, water and electrolyte balance.
4.	HP111 1(1+0)	Nutrigenomics	Genomics in healthcare, personalized nutrition application of genomics in development of nutritious food
5.	HP111 1(1+0)	Nutraceuticals and health foods	Potential health benefits of nutraceuticals, omega 3, lycopene, isoflavanoids, prebiotics and probiotics, glucosamine, phytosterols, therapeutic uses of nutraceuticals, safety aspects of nutraceuticals
KLSDM Life style disease management			
1	LSDM113 3(1+2)	Clinical nutrition and dietetics	Nutritional status and diseases, pathogenesis of nutritional diseases of the stomach, duodenum, small and large intestine , diverticulitis, malabsorptive syndrome, constipation, diseases of liver, pancreatitis, diabetes, cardiovascular diseases,

			cancer, nephritis, urinary calculi, renal failure, dietary management of overweight , obese and underweight, dietary management of diabetes liver diseases, atherosclerosis and hypertension, injury and trauma.
		Practical	Estimation of haemoglobin, total protein, albumin, total cholesterol HDL, LDL, TG in blood, diet planning for different diseases conditions- diet formulation in diabetes, CVD, renal, Obesity and hepatic diseases. Assignments and presentation.
2.	LSDM113 3(2+1)	Diet and Wellness management	Physiological changes and nutritional requirement during different stages of lifecycle, diet planning, importance and modification of normal diet to therapeutic diet, Vedic nutrition, modern concept of health, fitness and wellness, stress management and mental health, workplace fitness management
		Practical	Planning of diets for different stages of life cycle, Diets for improving productivity, Wellness diet, Health related physical fitness and it's assessments, Benefits of yoga and exercise
3	HDM1133 (0+3)	Diet Counselling Practical	Counselling process and its significance, assessment needs of patients, patient education on diabetes, cardiovascular disease, and renal diseases. Counselling and family therapy, Mindful eating habits

**PILOT COURSE
ON
PIG FARMING AND PORK PROCESSING**

Course Title : Pig Farming and Pork Processing
Course Code : PFP-018
Total Credit Hours : 18 (6+12)
Theory Credit Hour : 60 minute (1 hour)
Practical Credit Hours : 120 minutes (2 hours)

A. Objective:

The course curriculum aims at imparting basic knowledge and skills for adoption of pig farming on commercial way to produce quality pork and pork products. It will also be helpful for development of ready human resource for the industry. The prime focus is on training of personnel for self-employment and creating awareness and competency in the area of pig production and meat processing sector. The objective shall be to develop competencies in general care and management of pig, breeding and nutritional management of pig including prevention and control of diseases of pig, good slaughtering practices, handling of meat on scientific lines, production of quality meat and meat products, testing and quality control of meat and meat products. The knowledge imparted shall facilitate good manufacturing practices in the processing sector and hygiene.

B. Expected learning outcomes:

- Skill up-gradation on scientific aspects of pig husbandry and pork processing.
- Encouraging rural youth for undertaking pig farming for better profitability.
- Enhanced entrepreneurial ability and managerial skill.

C. Course Content

Course No.	Title	Content	Credit Hour	
			Theory Hour	Practical Hour
PFP 01	Scope and potential of pig husbandry	Introduction to scientific pig farming. Scope and potential of pig farming. Prospect of self-employment through pig farming. Handling and restraining of pig.	1	1

PFP 02	Breeding and management of pig	Exotic and Indigenous breeds of pigs. Selection of breeds of pigs suitable to the local condition. Selection of gilts and boars for breeding. Signs of heat and detection of heat of pig. Artificial insemination in pig.	1	1
PFP 03	Feeding and Management of Pig	Different feeding system of pig. Feeding of different categories of pig. Selection of different ingredients for preparation of economic pig ration. Preparation of ration for different categories of pig. Unconventional feed resources and preparation of low cost pig ration.	1	1
PFP 04	Pig farm organization and management	Selection of site for pig farming. Layout, design and construction of pig houses. Summer management of pigs. Production economics in commercial pig farming.	2	1
PFP 05	Slaughtering and Dressing of Pigs	Ante-mortem inspection; Scientific slaughtering and dressing of pigs for efficient conversion of muscle to meat; post-mortem inspection procedure; Chilling and fabrication of carcass	0	2
PFP 06	Processing equipment	Equipment used in meat processing, their cleaning and handling operations	0	1
PFP 07		Selection and grading of raw material for meat processing; Formulation of recipes and use of	0	3

	Product Preparation	non-meat ingredients in processed meat products; Preparation of casing; Brining; Curing; Preparation of fresh and fermented processed meat products (Sausage, Salami, Nuggets, Meat patty, Pickle, etc.)		
PFP 08	Preservation of Meat and Meat Products	Packaging of fresh and processed meat; Smoking techniques, Non-thermal preservation techniques.	1	1
PFP 09	Quality Control Tests	Sensory evaluation, microbiological tests, chemical tests	0	1
		Total	6	12
Total= 18 (6+12)				

**COURSE CURRICULUM FOR HANDS-ON TRAINING ON “POULTRY
HUSBANDRY AND MEAT PROCESSING”
UNDER IDP-NAHEP**

1. Title of the Programme: Poultry Husbandry, Meat processing and Entrepreneurship Development

2. Preamble:

In India, poultry is the most organized sector in animal agriculture worth of more than rupees one lakh crore. India ranks 3rd in egg production and 4th in broiler production in the world. Poultry not only provides income generation but also employment generation, women empowerment and nutritional security. The human population of India is 1.23 billion and the number is growing every year with a good quantum of non-vegetarian population. Chickens are accepted by all communities and are available at the most reasonable prices. In Assam, Chicken farming including broiler has been playing a vital role for self-employment of educated unemployed youths. There are more than sixty thousand broiler farmers in Assam. About 95% of the people of North Eastern Region (NER) are non-vegetarian by their dietary choice. Further, the consumers have shown growing interest on poultry, being healthy. They are also shifting their choice from red meat to white meat. However, a big chunk of chicken meat is sold through wet marketing adopting unhygienic conditions. Hence, there is tremendous scope of development of poultry processing plant meeting the standards of HACCP (Hazard Analysis Critical Control Point) under regulatory bodies like Food Safety and Standard Authority of India (FSSAI) through Food Safety Standard Regulations. At present there is acute shortage of quality meat and products in the domestic market. Value added meat products are really scarce in the market and there is growing demand for such products in the wake of changing economic status of the society. The major weaknesses in processing sector in NER are the lack of scientific training of butchers, unhygienic slaughtering practices, wet market, poor infrastructure facilities, quality control standards, lack of awareness and improper utilization of by-products. In order to overcome these weaknesses, scientific processing of meat must be done for improvement of poultry processing sector as well as entrepreneurship development.

Objectives:

- To impart hands-on training to unemployed educated youths on poultry husbandry of meat birds and scientific method of poultry processing, preservation and preparation of value added poultry meat products.
- To create awareness among consumers for consumption of hygienically produced poultry meat.
- To emphasize for the utilization of slaughterhouse by-products.
- To popularize production and consumption of value added meat and meat products.

3. Scope for Entrepreneurship:

In the context of importance of poultry husbandry and meat processing in animal agriculture, the course will be beneficial to the youths for establishment of small to medium scale poultry farm and poultry processing plant for scientific processing of poultry meat and preparation of value added meat products. This training will open the scope for entrepreneurship development among the enthusiastic youths of the state.

Course Content for hands-on training on “Poultry Husbandry and Meat Processing”**Under IDP-NAHEP**

Course No	Course Content	Credit Hours
Poult. husbandry 01	✓ Scope and Potential of poultry husbandry and Poultry Processing enterprise in Assam. ✓ Husbandry Practices on different species of meat birds (broilers, quail, turkey etc.)- 1.1: Brooding 1.2: Feeding 1.3: Lighting 1.4: Litter management 1.5: Medication & vaccination etc.	1+3
Poult. husbandry 02	✓ Care and management of meat type birds ✓ Practical on hatchery management 2.1: Cleaning, washing & disinfection 2.2: Fumigation 2.3: Setting of eggs in incubator 2.4: Candling and transfer 2.5: Chick hatching	0+4
Poult. Processing 03	✓ Scientific processing of Poultry, Chilling, Freezing	0+4
Poult. Processing 04	✓ Preparation of value added Poultry products- Nuggets, Meat balls, patties, sausages, egg pickle etc.	0+4

Poult. Processing 05	<ul style="list-style-type: none"> ✓ Sensory evaluation of the products, Packaging and storage of products. ✓ Preparation of a project report for a modern poultry processing unit. ✓ Marketing of poultry meat and meat products. 	0+4
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Total Credit Hours: 20

PHOTO GALLERY



Entrepreneurship training on bakery conducted in AAU, Jorhat



Hands on training on various aspects of poultry husbandry and meat processing in CVSc., Khanapara



Entrepreneurship development training on Pig husbandry and pork processing



Soft skill workshop for students of College of Fisheries Science, AAU, Raha



Soft skill workshop conducted in AAU, Jorhat



MinDFit Workshop for Skills Development using EXA based Therapy



Workshop on Nanoparticle Tracking Analysis (NTA) for students and Faculty members



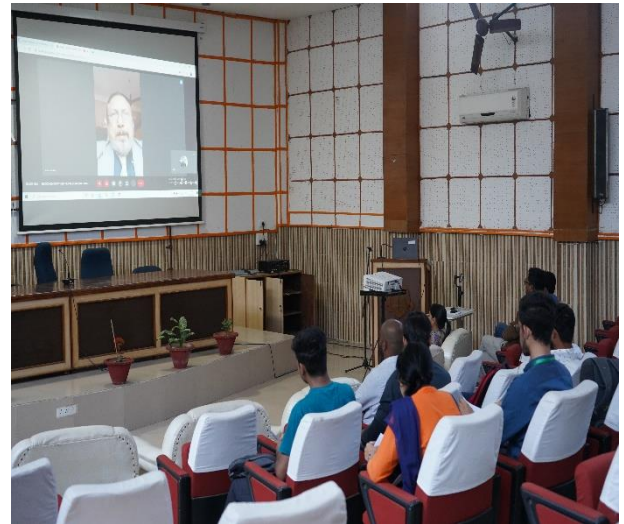
Workshop on Artificial Intelligence held at AAU, Jorhat



Skill development training in documentary film making



Skill development training on use of Agrochemicals under IDP, NAHEP, AAU



Workshop on Sensitization on entrepreneurship development for agro-based industries



Student READY programme in NEATE Hub



Skill development training on Decorative Candle Making in AAU, Jorhat



AAU Industry Interface at Assam Agricultural University, Jorhat



AAU Industry Interface at College of Veterinary Science, AAU, Khanapara



Students exposure visit training in ETH, Zurich, Switzerland



Students exposure visit training in ITCPH, Philippines



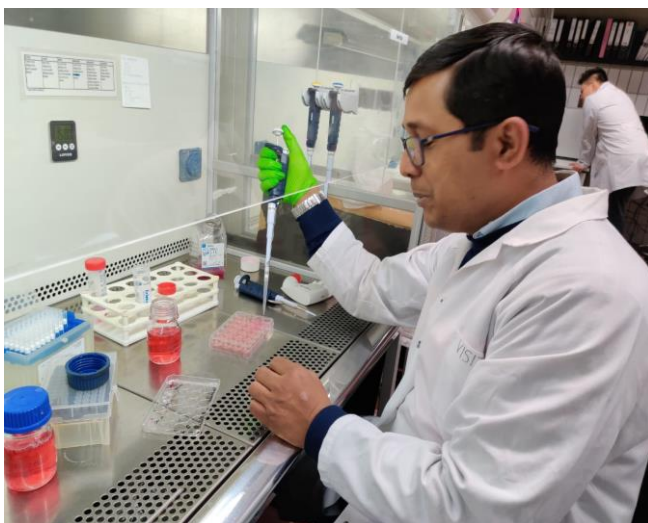
Students exposure visit training in IOWA State University, USA



Students exposure training in University of Nebraska, USA



Students internship training under NAHEP, AAU



Faculty upgradation training under IDP, NAHEP, AAU



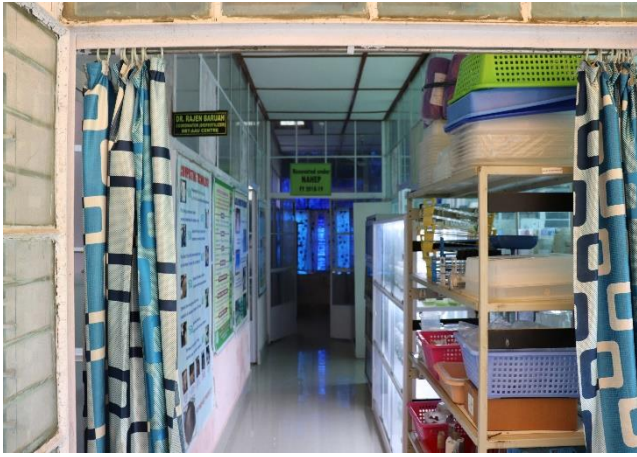
Visit of Adjunct Professor, Dr. R.L. Agarwal



Visit of Adjunct Professor, Dr. M.K. Bhattacharyya, IOWA State University, USA



Lecture of Dr. Sanjib Bhuyan from Rutgers University, USA



Facilities created under head 'Minor Repairs and Renovation' of IDP, NAHEP, AAU

Laboratory equipments procured under IDP, NAHEP, AAU



Centrifuge in College of Fisheries Science



**Spectrophotometer in Biopesticides lab,
AAU, Jorhat**



**CCTV camera installed in Administrative
Building, AAU, Jorhat**



**Autoclave in Biofertilizer lab, AAU,
Jorhat**



**Poultry Rendering Plant in CVSC., AAU,
Khanapara**



Distillation unit in CFSc., Raha