



Institutional Development Plan (IDP)

“Incentivizing Dairy Education through Innovative Learning Approaches”

**National Agricultural Higher Education Project
(NAHEP)**

Progress Report (April 2019 – March 2020)

Submitted by

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Table of Contents

S.No.	Content	Page No.
1.	Executive Summary	3
2.	Component 1a	4-34
3.	Disclaimer	35

1.0 Executive Summary

Project Objective:

The institute has proposed 'Institutional Development Plan' with the objective to strengthen its academic programmes by introducing industry oriented course modules with learning outcome centric approach to make it more relevant to the stakeholders of the industry and farming community. It also proposes to leverage its strong alumni base located in leading industries and academic institutions across the world to enrich its programme and mentor the students to be globally competitive. Exploring opportunities for engagement with researchers and academia based at leading world universities through student exchange, twinning/sandwich/dual degree programs and on campus mentoring for international exposure of the students remain one of the thrust areas of the IDP. The IDP for the institute also lays great emphasis on nurturing the soft skills of the student and offering them ecologically sustainable and vibrant campus life for overall development of their personality which are so critical for employability. The institute has also built in strong provisions for equity action plan for disadvantaged students and proposes to engage communities and stakeholders to discharge its social responsibilities very responsibly. Finally, through successfully implementing the activities listed in the IDP, the institute aspires to emerge as an institute of global repute.

Component 1a: Support to Institutional Development Plan (IDP) of Agricultural University:

During the FY 2019-20, different activities were undertaken to create enabling environment for enhancing faculty's competence and student's soft and professional skills which includes sending bachelor's degree program students for overseas internship and faculty for international training to globally renowned institutions, N_REACH program for B. Tech was organized and skill development program was organized. In order to leverage alumni network and industrial linkages for enhancing education and employment opportunities and fostering start up culture among students various workshops were organized during 2019-20. Different sessions involving faculty and students were convened for raising academic standards and quality of instructions. In order to create socially and environmentally responsible model campus and strengthen outreach programs for community engagement, different initiatives viz., incremental use of renewable energy in the campus, involvement of students in green campus, recycling of organic wastes, etc. were undertaken.

2.0 Component 1 a	
Support to Institutional Development Plan (IDP) of Agricultural Universities	Component cost USD 69.4 Mn

2.1 Output-outcome monitoring

S.No.	Particulars	April'19 to March'20		
		Plan	Achievement	Progress made during period (Elaboration)
1.	Number of new facilitative units established to enable academic and research infrastructure (IIIC- Industry Institution Interaction Cell / Start up cell / incubation cell / experiential learning unit / placement cell etc.)	4	3 Completed; 1 in progress	<ul style="list-style-type: none"> • Texture analyzer was procured to enhance student competence in the area of Texture analysis of dairy/food products. • Nitrogen analyzer was procured for protein identification in milk and milk products and animal feed. • Incinerator (Bio-hazard waste) was procured to ensure proper disposal of animal experiments waste for environment safety. • Establishment of Language lab is in progress.
2.	Number of pilot courses added/upgraded on communication skills, entrepreneurial skills, information processing, creative and innovative thinking, leadership skills, industry oriented courses etc.	10	13 Completed	<ul style="list-style-type: none"> • Skill development Programme On "Microbiological quality and safety analysis of dairy products" was organized during 15-24 January 2020. • A 10 days Certificate Entrepreneurship Development Programme on "Starter Culture and Fermented Milk Products" was organized from 18–27 February, 2020. • Dr. Koushik Adhikari, Associate Professor, Univ. of Georgia, USA is an Alumni of NDRI delivered lecture on "Sensory Evaluation: Importance, Physiology and Methods on 14th October, 2019 for the benefit of the students and faculty. • Training programme on "Computer vision applications in dairying" was conducted during 20-24 January 2020. Dr.

				<p>Aditya Nigam, Associate Professor, IIT, Mandi was the resource person.</p> <ul style="list-style-type: none"> • N_REACH program for final year B. Tech students was conducted by Nestle-India on 27-28 November, 2019. • Workshop on “Dialogue with students, Women empowerment, Leadership and Social Entrepreneurship” was organized on 27th April, 2019. Women empowerment, gender equity and women rights, etc. were discussed on this platform. Also, personality development lecture was conducted. • Workshop on “Mammalian Genome Editing by CRISPR Technique” on 15th November, 2019. Dr. Charles Long, Univ. of Texas A&M • Workshop on “Advances in Starter Culture Technology” was organized on 12th December, 2019. Dr. Olivia McAuliffe, Teagasc, Ireland was the resource person. • Workshop on “Textural Analysis of Dairy & Food Products” was organized on 14th January, 2020. Dr. Guy Jones, Stable Micro Systems, UK was the resource person. • Workshop on “Revisiting Compounded Cattle Feed Specifications” was organized on 11th February, 2020 was organized. • Workshop on “Metabolomics: Basic Principles and Applications” was organized during 3-5 March, 2020. Resource persons for this programme were Dr. Rabi Sankar Bhatta, PS, CSIR-CDRI, Lucknow; Dr. Ashish Gupta, Additional Professor, Centre of Biomedical Research (CBMR), Lucknow; Dr. Dinesh Kumar,
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				<p>Associate Professor, CBMR, Lucknow and Mr. Satyendra Pratap Singh, Senior Application Specialist, Shimadzu Analytical India Pvt. Ltd., New Delhi.</p> <ul style="list-style-type: none"> Organized “Experiential Learning” programmes for UG students EDP programmes for prospective entrepreneurs were organized.
3.	Additional revenue generated through institutional activities with industries (in INR lakhs)	25	6.28844	This was generated from Contract Services.
4.	Revenue generated through public usage of infrastructure for academic activities in INR lakhs	148	10.49166	<ul style="list-style-type: none"> 35 Student trainings were conducted in which Rs. 664930/- Lakhs revenue was generated. 10 Non-Student trainings were conducted in which Rs. 90800/- Lakhs revenue was generated. One General Consultancy Service was provided in which Rs. 293460/- Lakhs revenue was generated.
5.	Number of MoUs signed with industry for knowledge exchange programs/internships/short-term training programs etc.	03	01	Signed MOU with IIFPT, Thanjavur to support Entrepreneurs in dairy & food processing.
6.	Number of faculty exchange programmes (both national and international) initiated by Agricultural university.	44	7	Sixteen faculty members were selected and 7 proceeded for training (at 6 different universities located in USA & Netherlands) and remaining 9 could not go due to nCOVID-19 Pandemic. Fifteen faculty members selected for overseas internship during 2018-19 have also returned back to NDRI after successful completion of internship.
7.	Number of student exchange programmes (both national	21	24	Twenty four students have completed their overseas

	and international) initiated by Agricultural University			internship at 11 different universities in 4 different countries.
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2.2 Input and activity monitoring

Input/Activity indicator	Sub-head/category	Expenditure/input in INR Lakhs		Justification
		Planned	Utilization	
Goods and equipments	Equipment, Plant & Machinery	0	0	
	Office equipment	5.379	2.11736	
	Laboratory equipment	199.03972	75.23302	
	Furniture & fixtures	0	0	
	Computers and Peripherals	55.06336	7.236	
	Books and Journals	0	0	
Civil works	Minor repair and renovation works	75.00	0	
Human capacity building	National level training	0	0	
	International level training	223.79928	73.82154	
	Short visit/seminars	15.0	0.6497	
	Meetings and workshops	23.53575	3.15303	
Consultancy	National level consultancies	21.27823	0	
Recurrent cost / Miscellaneous	Travel	7.38045	6.53133	
	Contractual services	150.61545	51.79654	
	Operational costs	615.61792	115.88936	
	Institutional charges	31.36	12.90	
Total		1423.06916	349.32788	

2.3 Challenges faced and lessons learnt under Component 1a:

1	During the FY 2019-20, procurement activities could not be materialized due to Covid-19 Outbreak and activities also got delayed due to the same.
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2.4 Plan ahead (Key activities) for next reporting period	
1	Foundation course for fresher's of B. Tech. (Dairy Technology) students aimed at identifying their innate talents, building their self-confidence, helping them explore their creative passions and develop their minds and bodies.
2	Procurement of instruments/equipment to ensure quality hands-on-training and competence of students.
3	Advanced training in education technology, dairy science and agribusiness incubator management to enhance faculty competence and foster innovation.
4	Procurement of instruments/equipment to ensure quality hands-on-training and competence of students.
5	Organization of soft skill development courses to improve verbal & non-verbal communication skills, team work and other personality traits of the students.
6	Introduction of newly designed industry oriented course modules to improve adaptability of the students to industry environment.
7	Industrial attachment linkages to improve the problem solving skills of the students.
8	International linkages with leading global institutions/universities to enhance student competence and prepare them for global career opportunities.
9	Initiatives for Dual Degree with reputed foreign universities.
10	Mobilizing industry participation for supporting research and innovations.
11	Showcasing NDRI at national level by organizing road shows to increase awareness of the dairy education among youth; conducting open dairy science day & exposure visits for school children in order to motivate them.
12	Attracting more number of international students to the institute campus for fostering high-quality educational experiences for our students.
14	Continuous database updating, monitoring and streamlining communication with the alumni.
15	Documenting alumni success stories and publishing them as books, posters etc. for attracting superior intake during admissions.
16	Creating more opportunities for alumni and industry stalwarts to spend time on the campus and engage as stakeholders in institution building (Guest lectures, training sessions, panelists, workshops) and career guidance of the students.
17	Virtual mentoring of students by Alumni through social media.
18	Catalyzing collaborations through alumni-faculty members at foreign universities (student exchanges, adjunct faculty, virtual classrooms, etc.).
20	Organization of 'Innovative Idea Contest' related to Dairy/Agribusiness opportunities and possibility of exploring seed funding to selected ideas.
21	Mentor support for nurturing business ideas and technology development.
22	Provide support to start-ups/entrepreneurs for setting up and development of Business enterprise (regulatory approval/market research/assistance in mobilization of funds/ grants through various government schemes/venture capitalists) through consultants.
23	Establishment and strengthening of linkages with other incubation centres for establishing different domain areas and with different business schools to promote entrepreneurial skills among students.

25	Monitoring of implementation of QMS procedures coupled with a robust continuous assessment procedure based on student feedback and peer assessment to enable the teachers to improve their teaching.
26	Recognition and awards to teachers who use pedagogical innovation and are responsive to students' aspirations.
27	Engaging students in problem-solving and collaborative curriculum development to promote analytical and thinking skills.
28	Encouraging students to successfully compete for national and international scholarships and scholastic grants.
29	Creating facilities and tutorial support for Socially disadvantaged and Differently-abled students.
30	Initiatives will be taken for confidence building, self-defense training and grievance redressal system for women students.
31	Initiatives for incremental use of renewable energy in students hostel premises and the campus.
32	Implement technological interventions to substantially reduce energy use in day to day life.
34	Involvement of students in green campus, recycling of organic wastes and other sustainability initiatives.
36	Leveraging State-of-the-Art Referral laboratory facility at the institute for the Dairy and Food industry at competitive commercial terms for revenue generation.
37	Student's engagement in community based academic service programs, public service and outreach activities.
38	Entrepreneurship development, Skill development and Certificate Courses (Commercial Dairy Farming, Milk & Milk Product Processing, Food processing, Milk quality and safety assurance) for unemployed youth/rural youth/college dropouts.
39	Digital initiatives such as MOOCs/virtual classes to be organized for the benefit of students of willing Dairy Science Colleges.
40	Leveraging research facilities and business incubation set ups for improving entrepreneurship among students of other partner Dairy Science Colleges.

2.5 Support to Institutional Development Plan (IDP) of AUs				Component cost USD 69.4 Mn
S.No.	Particulars	April'19 to March'20		
		Plan	Achievement	Progress made during period
1.	Number of faculty exchange programmes (both national and international) initiated by AU	44	7	16 faculty members were selected and 7 proceeded for training (at 6 different universities located in USA & Netherlands) and remaining 9 could not go due to nCOVID-19 Pandemic.
2.	Number of student exchange programmes (both national and international) initiated by	21	24	Twenty four students have completed their overseas internship at 11 different universities in 4 different countries.

	AU			
3.	Number of technologies transferred to industry / private sector / national / international organizations	17	08	A total of eight technologies of worth 22.35 Lakhs (GST 18% not included) were transferred to 04 different Industries.
4.	Number of students selected in JRF / SRF / ARS	-	02	Two students have got Institute Scholarship
5.	Number of students who were admitted in foreign universities.	-	3+2*	<p>Three students (beneficiaries of IDP) are currently pursuing Master's at overseas universities:</p> <ol style="list-style-type: none"> 1. Ms. Shikadri Mahanta, MS in Biological and Agricultural Engineering at Texas A&M University. 2. Mr. Ratul Kalita, MS in Biological Sciences, Specialization in Dairy Science at South Dakota State University, USA. 3. Mr. Pranav Vashist, MS in Food Science and Engineering at Nashville, Tennessee State University, Tennessee, USA. <p>*Two students (beneficiaries of IDP) have got admission for pursuing Master's at overseas universities:</p> <ol style="list-style-type: none"> 1. Mr. Vinay Kumar, B.Tech 4th year got admission in Master's program (Food Technology) at Wageningen University, Netherlands. 2. Ms. Pragya Malik, B.Tech 4th year got admission in Master's program (Food Technology) at Wageningen University, Netherlands.
6.	Number of students received National Young Scientist Award	NA	-	-
7.	Number of students received ICAR's Jawaharlal Nehru thesis Award	NA	01	Dr. Sonika Ahlawat, PhD student of Animal Biotechnology, ICAR-NDRI received the award during 2018.

8.	Number of students awarded at Agri-unifest	-	-	Twenty two students participated in 20 th All India Inter-Agricultural Universities Youth Festival.
9.	Number of students awarded at Agricultural University Sports Meet	-	-	Thirty three students participated in Agricultural University Sports Meet organized in March, 2020.
10.	Number of industry-sponsored projects and positions in cutting-edge areas of agri-science	5	-	-
11.	Number of competitive grants from a national/international funding agency	-	20	Competitive grants from several funding agencies viz. DST, DBT, MoFPI, ICSSR, IRMA, ICMR, etc. received by ICAR-NDRI during FY 2019-20.
12.	Number of technologies commercialized by AU	17	08	A total of eight technologies of worth 22.35 Lakhs (GST 18% not included) were transferred to 04 different Industries.

Photographs of various activities conducted by IDP, ICAR-NDRI, Karnal during FY 2019-20



Students and faculty listening to speakers



Distinguished speakers on the dais



Dr. N.S. Rathore, DDG (Education), ICAR inaugurated the workshop



Dr. R.R.B. Singh, Director (Acting), ICAR-NDRI facilitating DDG (Education), ICAR



Glimpses of Workshop titled “Dialogue with students, Women empowerment, Leadership and Social Entrepreneurship” organized on 27th April 2019



To mark the 128th birth anniversary of Dr. B.R. Ambedkar on 15th April, 2019 a Blood donation camp was organized at Human Health Complex, NDRI, Karnal (Community engagement & Outreach programme initiative of IDP-NAHEP, NDRI)



Dr. R.R.B. Singh, Director (Acting) addressing the sister SAU students visited NDRI, Karnal to undergo summer -internship



Group photograph of student interns with NDRI Faculty



Certificate distribution to student interns after successful completion of internship

Students (20 No's) from sister SAUSs were offered 2 months summer-internship at NDRI, Karnal during June-July, 2019 as an Outreach Initiative of IDP-NAHEP, NDRI



Students interacting with villagers



Swachh Bharat activity



Yoga session



Arts session



Personality development session



Sports activities

Pictures of some activities conducted during Foundation Program-2019 and Fresher's Day Celebrated at NDRI, Karnal (Aug-Sep 2019)



Dr. Koushik Adhikari, Associate Professor, Univ. of Georgia, USA delivering lecture



Dr. R.R.B. Singh, Director (Acting), NDRI felicitating Dr. Koushik Adhikari

Glimpses of workshop conducted on “Sensory Evaluation: Importance, Physiology and Methods” on 14th October, 2019 at ICAR-NDRI, Karnal



Dr. Charles Long, Professor, Texas A& M University USA, delivering lecture



Students interacting with Dr. Charles Long



Dr. R.R.B. Singh, Director (Acting), NDRI felicitating Dr. Charles Long

Workshop conducted on “Mammalian Genome Editing by CRISPR Technique” on 15th November, 2019 at ICAR-NDRI, Karnal



Various activities conducted during N_REACH workshop organized by Nestle, India at NDRI, Karnal during 27-28 November, 2019



Dr. Olivia McAuliffe, Principal Research Officer, Teagasc, Food Research Centre, Ireland delivering lecture



Students listening to Dr. Olivia



Dr. R.R.B. Singh, Director (Acting), NDRI felicitating Dr. Olivia

Glimpses of workshop on “Advances in Starter Culture Technology” on 12th December, 2019 at ICAR-NDRI, Karnal



Dr. Guy Jones, International technical Manager, Stable Micro Systems, UK delivering lecture



Students interacting with Dr. Jones



Dr. R.R.B. Singh, Director (Acting), NDRI felicitating Dr. Jones

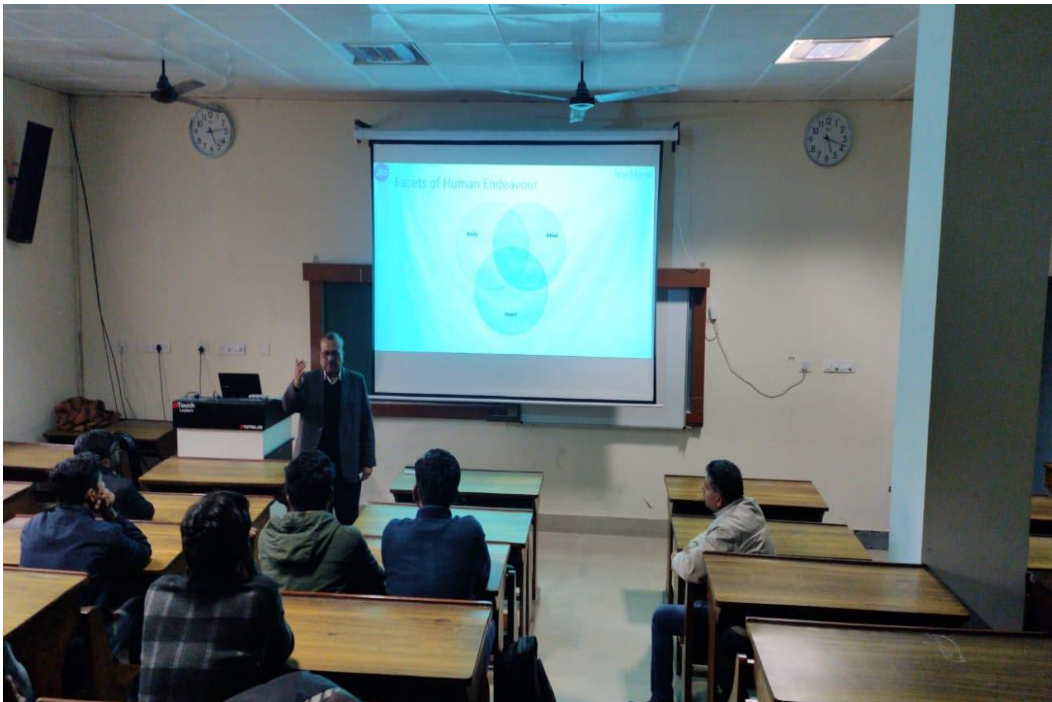
Workshop conducted on “Textural Analysis of Dairy & Food Products” on 14th January, 2020 at ICAR-NDRI, Karnal



Interaction with Dr. GRK Murthy, PS, TELAge Lab, ICAR-NAARM, Hyderabad on 11th December 2019 at ICAR-NDRI, Karnal regarding MOOCs development for “Dairy Production and Dairy Processing Subjects”



Skill development Programme conducted on "Microbiological quality and safety analysis of dairy products" during 15-24 January, 2020 at Referral Lab of ICAR-NDRI, Karnal



Meditation Session organized By Mr. Atul Jain, Heartfulness NGO for the benefit of students on 4th February, 2020 at ICAR-NDRI, Karnal



Dr. Aditya Nigam, Associate Professor, IIT, Mandi delivering lectures



Students interacting with Dr. Nigam



Dr. R.R.B. Singh, Director (Acting), NDRI felicitating Dr. Nigam

Workshop organized on “Computer vision applications in Dairying” during 20-24 January, 2020 at ICAR-NDRI, Karnal



World Bank Review team interacting with Dr. M.S. Chauhan, Director and Dr. R.R.B. Singh, Joint Director (Academics) of ICAR-NDRI, Karnal



World Bank Review team interacting with IDP team and beneficiaries of ICAR-NDRI, Karnal



Dr. M.S. Chauhan, Director, NDRI felicitating World Bank Review team

Dr. S.K. Tomar, PI, IDP, NDRI felicitating Dr. P. Ramasundaram, NC, IDP, NAHEP

Visit of World Bank Review Team to IDP Centre of ICAR-NDRI, Karnal on 5th February, 2020



Judo-Karato Session, a self defense training for girl students, organized by Mr. Manish (Tie Commando) on 5th February, 2020 at ICAR-NDRI, Karnal



Experts from Industry and Academia interacting during the workshop



Expert-Stake holder interaction



Dr. M.S. Chauhan, Director, NDRI felicitating expert members

Workshop organized on “Revisiting Compounded Cattle Feed Specifications” on 11th February, 2020 at ICAR-NDRI, Karnal



Group photo of participants and organizing team



Participants undergoing training during practical sessions

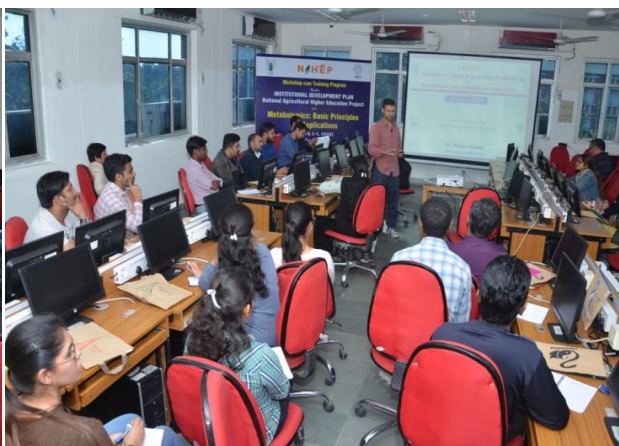
Certificate course on “Starter Culture & Fermented Milk Products” organized during 18-27 February, 2020 at ICAR-NDRI, Karnal



ICAR-NDRI, Karnal students participated in 20th All India Inter-Agricultural Universities Youth Festival organized during 8-12 February, 2020 at Indira Gandhi Krishi Vishwavidyalaya, Raipur, CG, India



Dr. Dinesh Kumar, Associate Professor, Centre of Biomedical Research (CBMR) delivering a lecture



Dr. Rabi Sankar Bhatta, Principal Scientist, CSIR-CDRI, Lucknow delivering a lecture



Group photograph of the resource persons with students and faculty

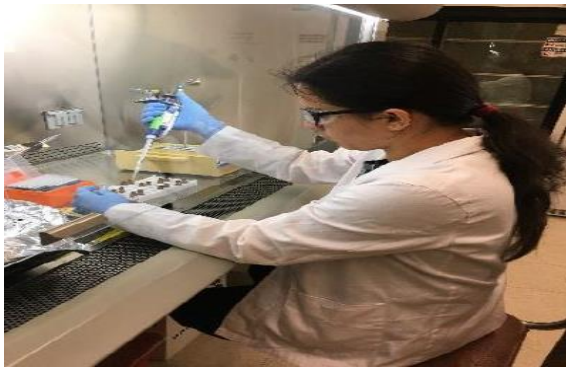
Workshop organized on “Metabolomics: Basic Principles and Applications” during 03-05 March, 2020o at ICAR-NDRI, Karnal



Dr. G.S. Meena at UCC, Cork, Ireland



Dr. P.V. Behare at Teagasc, Moorepark, Ireland



Dr. Heena Sharma at Oklahoma State University, USA



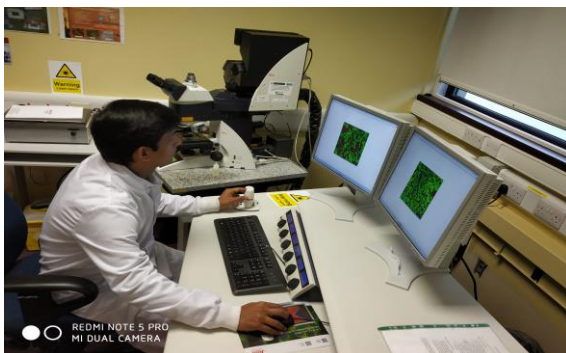
Dr. Sachin Tyagi at CSIRO, Australia



Dr. Vivek Sharma at Aarhus University, Denmark

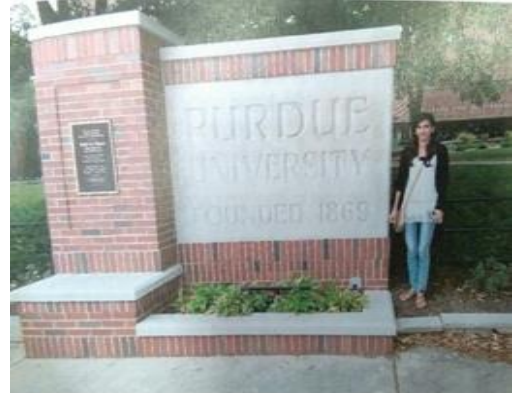


Dr. Rajesh Bajaj at University of Leeds, UK



Dr. S.A. Hussain at Teagasc, Moorepark, Ireland

Glimpses of Overseas Internship of NDRI Faculty - A total of 15 faculty have completed overseas internship at 12 International Universities in six different countries



Mr. Manan Preet Singh at Mc Gill University, Canada

Ms. Poonam at Mc Gill University, Canada



Mr. Girish Rajpurohit at University of Georgia, USA



Mr. Aryaman Chuhan at Riddet Institute, New Zealand

Glimpses of Overseas Internship of NDRI Students - A total of 24 B.Tech students have completed overseas internship at 11 International Universities in four different countries



Old cycles and farm machinery parts were made into adornments

Milk bottles and can were made into decorative items

Best out of waste initiative under Environmental Safeguards Activity of IDP, NDRI



Charak Udhyan developed under Green campus initiative of IDP, NDRI



Herbal garden developed under Green campus initiative of IDP, NDRI

Best out of waste initiative under Environmental Safeguards Activity of IDP, NDRI



Tree house for birds was fabricated from waste material



Metal sculpture of Peacock made from condemned iron bars



Fish pond decorated as a part of campus beautification



Metal garniture made for showcasing beauty of NDRI

Campus beautification initiative under Environmental Safeguards Activity of IDP, NDRI

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