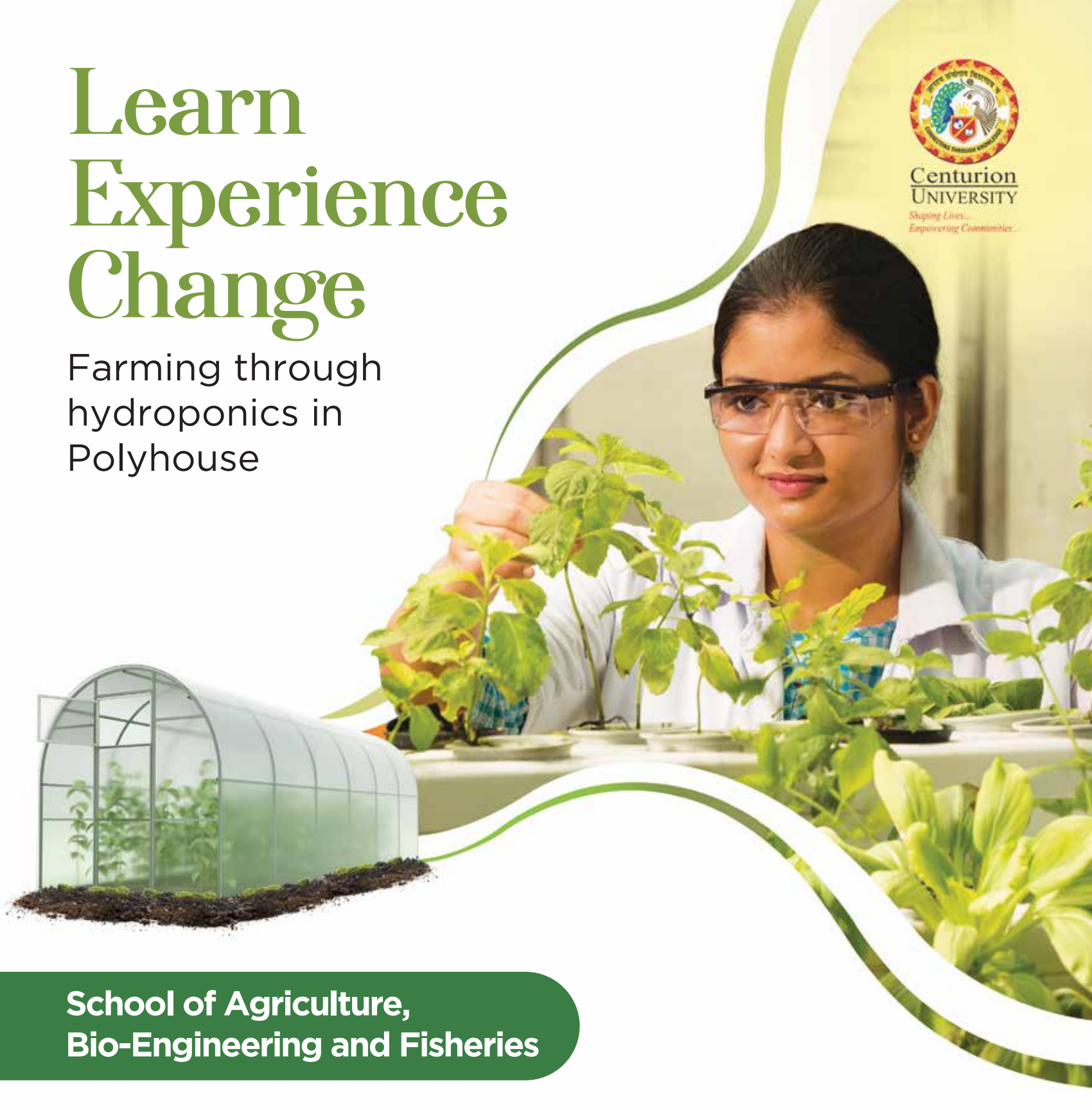
Learn Experience Change

Farming through hydroponics in Polyhouse

Centurion University
Shaping Lives...
Empowering Communities...



School of Agriculture, Bio-Engineering and Fisheries


CONNECTING THROUGH KNOWLEDGE
Centurion
UNIVERSITY
Shaping Lives...
Empowering Communities...

CHANGE
EXPERIENCE
LEARN

Learn the world - Lifelong learning is an extension of classrooms, books and theories.

Experience the world - The perfect balance of knowledge and skills is the key to making a real difference.

Change the world - The university and our students must transform societies – change begins with us.

Shaping Lives...

ABOUT US

Centurion University is a pioneer in 'Skill Integrated Higher Education'. Its unique model lays specific emphasis on creating sustainable livelihoods (aligned to SDGs) in challenging geographies through education that results in employability and ignites entrepreneurship. This model has been recognized by multiple Governments (Central and State), International Organizations such as UNESCO, the World Bank, and Policy Think Tanks like the NITI Aayog. Centurion University's School of Agriculture and Bio-Engineering and Fisheries has been recognized as a Center of Excellence by Ministry of Skill Development and Entrepreneurship, Government of India.

We strive to excel as the best-in-class human resource development hub that builds employable, enterprising and society centric youth through industry relevant education, skill development, new ventures, production, and technology development.

Living by the value system of Inclusivity, Integrity, Equity, Respect, and Sustainability; our founders, faculty, and staff are fully committed to - **Shaping Lives, Empowering Communities.**

Focusing on experience based and practice-oriented learning to create transformative impact through community-centric innovation and action research, the university has built an ecosystem that includes and integrates communities, industries, entrepreneurs, and other education and research institutions.

The university encourages its students to participate in the WorldSkills Competition, and many students have won gold and silver medals at the national level.

The Centurion curriculum is aligned with the National Occupational Standards (NOS) as per the National Skills Qualifications Framework (NSQF). It is the only university accredited by the Government of India to contribute to the development of NSQF by creating new job roles and Qualification Packs (QP).

Empowering Communities...

AGRICULTURE

Agriculture and allied programs at Centurion University focus on smart agricultural processes and Industry 4.0, where students gain competency on all the underlying aspects of 'Farm to Fork'. The university has experiential learning units where students get a full exposure on AR/VR, Paddy Predict and Kalgudi app-based rice health monitoring and nutrient optimization. UAV-based soil and crop health monitoring and management, hyperspectral and multispectral image capturing and processing are some of the initiatives taken by the university for smart farming. Some other key areas are hydroponics, aeroponics and vertical farming, micropropagation of G9 banana and bamboo through plant tissue culture, bacterial, fungal and plant genome sequencing using Nanopore sequencer, production of bio-control agents like Trichoderma, Pseudomonas and Trichogramma, organic farming, growing of flowers via the IOT-based automated polyhouse, and production and marketing of hybrid seeds with the aim of building entrepreneurship.

Unlike other institutes, students get hands-on practice and skill in designing (3D models of machine components and their simulation using Dassault tools like CATIA and SOLIDWORKS), operating farm machineries including tractor-mounted combine harvesters and food processing equipment (Microwave Assisted Extraction and IR dryer), drone piloting, and using soft tools like ArcGIS, SWAT and HEC-RAS in water management. In the food processing domain, students gain insight into hot air drying, freeze-drying, extraction of essential oils (SC-CO2 extraction), value-added food and wine preparation. Students also learn statistical analysis of hydrological data, R-programming and Geo-spatial application in watershed management using ArcGIS software and IoT based water management.

Students from School of Fisheries (SoF) gain skill and competency in Water Quality Management, Fish Health Management, Feed Management, Aquatic Environmental Management, and Fish Processing Technology, through skill-based learning. SoF has 21 fishponds, feed mill, Biofloc unit, ornamental unit, aquaponic unit, Chinese circular hatcheries, fish processing unit, RAS system, and dedicated laboratories. It is also keen to adopt IoTs for smart intensive aquaculture in earthen and RAS units under the domains, namely: Intensive Aquaculture and Fish Processing Technology.

BACHELOR OF SCIENCE IN **AGRICULTURE**

Course Overview

From Horticulture, Genetics and Plant Breeding, Entomology, Plant Pathology, to Soil Science and Agricultural Chemistry, Agricultural Extension Education, Seed Science and Technology, students gain competency on all underlying aspects of the Farm to Fork concept. Apart from following the ICAR curriculum, the degree course also focuses on digital agriculture through AR/VR, IOT, UAV, image processing, scaling up agriculture production, genome sequencing through the research centres and own production units, through research centres and own production units. With a turnover of over 4 crores through the scaled-up production of low GI rice 'DiaFit', vermicompost, biofertilizers, and phytoextracts in the above units and Gram Tarang Foods, the university also partners with ICAR Institutes, NSDC, RCOF, other Universities in India and overseas, and private organizations such as Centre for Sustainable Agriculture, Sunmoksha Power Pvt. Ltd., Kalgudi, IFFCO Kisan, Genotypic Technology Pvt. Ltd., and ProFarm Seed India Pvt. Ltd. While students are exposed to various extension activities through RAWE & AIA and AELP, where they participate in real-time learning and dissemination of the latest farming techniques and practices, the university has trained over one lakh farmers under the RPL project in 30 districts of Odisha.

Duration

Four years (B.Sc.)

Scope/Job Opportunity

- Research Officer
- Quality Assurance Officer
- Agriculture Officer
- Agriculture Loan Officer (in Banks)
- Production Manager
- Operations Manager
- Farm Manager
- Lecturers
- Sales Officer

Eligibility Criteria

- 10+2 Science (Physics/Math, Chemistry, Biology) 50%

SMART AGRICULTURE

Course Overview

Designed to impart skill and practical knowledge to students on precision agriculture through application of IoT, UAV and mobile app-based crop management, the course deals in production of gerbera, dendrobium orchid and Dutch rose by IoT-based management of greenhouse, precision management of low GI rice with the Paddy Predict and Kalgudi apps, and the use of UAV for crop health monitoring and management. Students also learn to grow vegetables like lettuce, pakchoi, kale, broccoli, basil, Chinese cabbage, etc., under soilless culture, hydroponics and aeroponics. They become familiar with drip and micro-irrigation, plastic mulching, construction of different types of greenhouses, application of Cropwat (FAO), DSSAT, modified Penman and Aquacrop for water management and yield estimation. Moreover, emphasis is given on practices and projects to empower students to become skilled professionals / human resources after successfully completing the course.

ORGANIC FARMING

Course Overview

Organic Farming stands on three pillars: Research, Practice and Promotion (RPP). The curriculum focuses on imparting traditional, innovative and scientific skills on diverse crop cultivation, in order to restore the soil health and environment – for a sustainable future. The university has also collaborated with Regional Centre for Organic Farming (RCOF), Bhubaneswar, and Centre for Sustainable Agriculture, Hyderabad, to create a chain of Organic Farming practitioners, generate database on production and productivity, and reduce the cost of crop cultivation through effective use of on-farm by-product.

PROTECTED HORTICULTURE

Course Overview

This course delineates the horticultural crop (vegetables, fruits, flowers, medicinal, aromatic crops, etc.) cultivation under controlled conditions through modification of the natural environment through practices and structures to achieve optimal productivity by increasing qualitative and quantitative yield. The curriculum is aimed to introduce and familiarize the principle, theoretical aspects and developing skills in protected cultivation of horticultural crops. It imparts knowledge regarding input-output relationship marketing in high valued export marketing system. Learning outcome of this course encompasses hands-on experience of method-techniques in protected cultivation, knowledge on polyhouse, mulching, micropropagation and microirrigation. In today's world, high-tech horticulture poses an important role to scale-up trade and agriculture economics in the international scenario. In collaboration with Himalayan Drug Company Pvt. Ltd, Bengaluru, the course also introduces and acclimatizes underexploited medicinal crops to Gajapati District of Odisha.

GENETICS AND GENOMICS

Course Overview

With the focus areas being gene editing and gene sequencing, the course aims at investigating gene functions and inculcating the desired traits in the breeding programs and generating plants with modified traits that confer resistance to biotic and abiotic stresses. Actively involved in the whole genome and metagenome sequencing, and data analysis using Oxford Nanopore sequencer, it also focuses on giving hands-on training to students on molecular biology, plant tissue culture and genetic engineering techniques. The labs consist of Nanopore sequencer, software for genomics as well as the support lab equipment required for Bio Tech experiments like RT-PCR, PCR, etc. Students also practice RNA / DNA extraction and sequencing, and genomics analysis – making this school one of the few places that offers such facilities in Eastern India.

COMMODITY AND FOOD STORAGE

Course Overview

The course is designed to provide thorough knowledge on safe storage of commodity and food, skill development on identification of pests, diseases and their management, hands-on training of new techniques in storage, practical exposure to commercial safety procedures, and food security issues. Students gain skills in estimation of storage losses, fumigation techniques, gadgets and techniques used in the storage pest and disease management, and detection techniques of pests. They also learn the preparation of fresh-cut fruits and vegetables, export-oriented quality grading of fruits and vegetables, eco-friendly packaging, construction and design of zero energy cool chamber, working/design/construction of cold storage, and making of value-added products of various horticultural produce. Students who have undergone this course have all the knowledge and skills required in storage industries, empowering them for various government and private sector jobs related to storage and warehousing.

AGRI BUSINESS MANAGEMENT

Course Overview

Focused on the food and agribusiness sector while emphasizing business and economic analysis, this course is specifically structured to equip students with the requisite knowledge, skills, and outlooks for rural marketing, agri warehouse management, agribusiness managerial and entrepreneurial decision-making and execution. The course also provides extensive field experience and internship opportunities in the agri and allied industries, and banking sectors – ultimately leading to placement.

BACHELOR OF TECHNOLOGY IN AGRICULTURAL ENGINEERING

Duration

Four years

Scope/Job Opportunity

• Agricultural Engineer
• Plant Physiologist • Survey Research
• Environmental Controls Engineer
• Microbiologist • Food Supervisor
• Agricultural Inspector • Agricultural Specialist
• Farm Shop Manager • Soil Scientist
• Researcher • Agronomist
• Agricultural Crop Engineer
• Placement Prospects:
Dreams Agro International Pvt. Ltd., Sonalika (International Tractors Ltd.),
Sai Sustainable Agro, Our Food Pvt. Ltd.,
Mahindra Agri Solutions Ltd.,
East West Seeds,
Avani Agro Farms and Seeds, WASSAN, etc.

Eligibility Criteria

• 10+2 Science (Physics/Math, Chemistry, Biology)

Course Overview

Earning a bachelor's degree in Agricultural Engineering opens the scope for students to work in various areas including Farm Machinery, Soil and Water Conservation, Food Processing, Dairy Technology, Smart Agriculture, and so on. Students learn the design and operation of different farm machineries and implements like plough, seed drill, harvester, thresher, etc. The application of engineering in solving water management issues using advanced tools like ArcGIS, SWAT, and HEC-RAS, is taught. Students gain insight into the engineering aspects of food equipment design and processing, while getting hands-on experience in different food processing/preservation methods like freeze-drying, extraction, and value-added product development. It is mandatory for students to undergo training in smart agriculture and other specialized domains. They also get to do internships in various training institutes such as CFMTTI, CIPHET, IISWC, etc.

SMART FARM MACHINERY

Course Overview

This course includes the study of farm machinery design and the application of sensors and actuators. Students learn 3D modelling of machine components and their simulation using Dassault tools like CATIA and SOLIDWORKS. They also get the technical know-how needed for drone piloting and operating different agricultural machines such as tractor-mounted implements and combine harvester. Students have done many projects on creating smart seed planter, smart intra-row weeder, and smart chemical sprayer, while the development of 60 KW electric tractor has already started. In this course, students also get opportunities to do internship in the R&D development of tractor companies like ESCORTS and SONALIKA.

SOIL AND WATER CONSERVATION

Course Overview

This course makes students competent in statistical analysis of hydrological data along with visualization of data using R-programming and Geo-spatial application in watershed management using ArcGIS software. As part of the domain project, students get to work on smart engineering applications (e.g. Internet of Things) in solving various water management issues. Students learn various rainwater harvesting structures and techniques for Integrated watershed management, and get to work on hydrological models such as SWAT and HEC-RAS for simulated watershed processes.They also learn about flood management, drought management, watershed development plan for rainfed areas, and various policies and institutional activities on integrated watershed management. In addition, the course empowers students to collect and process satellite images for watershed delineation, mapping of soil erosion, mapping of evapotranspiration, etc.

FOOD PROCESSING

Course Overview

With this course, students learn various food processing/preservation methods such as hot air drying, freeze-drying, extraction of essential oils, pickling, jam, jelly, sauce and candy preparation, wine preparation, etc. They also get to develop and assemble food processing equipment based on modern technologies such as Microwave Assisted Extraction, IR dryer, etc. Learning to use equipment for determining the food composition, they get the know-how to develop innovative food products viz. cup-cake from ragi, starch free potato residue, vitamin and fibre enriched curd, and so on. Equipped with various analytical equipment including HPLC for food product characterization, students are enabled to make edible film from potato starch and are working to utilize other agro wastes for biodegradable packaging to address environmental issues. With internship programs in bakery units, mini dairy units and SC-CO2 extraction units, students gain skills and confidence of working in large production plants.

PLANT TISSUE CULTURE

Course Overview

Micropropagation of banana, standardization of micropropagation protocol of chrysanthemum, and vegetative propagation of ornamental plants are some of the major activities of the centre. The laboratory works to produce healthy seedlings, free from pathogens and uniformity, and aims to promote academics, research and training for skill development, professional excellence, and productivity at industrial sectors for an ultimate benefit to the tribal farmers, rural society, and entrepreneurs. The focus is on production and the labs are equipped to produce one million plants per year. Students get hands-on experience in using PCR, vegetative and micropropagation of plants. They also learn molecular procedures like RNA and DNA extraction, and the entire operations of x-plant preparation, media preparation, sub culturing, and growth monitoring till primary and secondary hardening in poly houses.

BACHELOR OF SCIENCE IN FISHERIES

Course Overview

The school supports students in developing their competency in Water Quality Management, Fish Health Management, Feed Management, Aquatic Environmental Management, and Fish Processing Technology, through skill-based learning. It has dedicated units such as 21 fishponds, fish feed mill, Biofloc unit, ornamental unit, aquaponic unit, Chinese circular hatcheries, fish processing unit, RAS system and dedicated laboratories. Students get hands-on practices for navigating trawlers, net webbing and repairing, preparation of value-added fish products, through various academic partners such as ICAR-CIFA, ICAR-CIWA, ICAR-CMFRI, NIPHATT, ICAR-CIFT, Growel Feeds, Tata Rallies, and many other fisheries institutes and companies. The school is also committed to use IoTs for developing smart intensive aquaculture for commercial production of fishes in earthen and RAS Units. In order to develop entrepreneurial skills among its peers, it has also developed two domain courses (Intensive Aquaculture and Fish Processing Technology) where students practice the methodologies adopted in aqua/processing industries.

Duration

Four years

Scope/Job Opportunity

- Fisheries Biologist
- Fisheries Extension Officer
- Fisheries Officer
- Fishery Manager
- Fishery Technician
- Fishery Observer

Eligibility Criteria

- 10+2 (Physics/Math, Chemistry Biology) 50%

INTENSIVE AQUACULTURE

Course Overview

In this domain, students are encouraged to design aquaculture rearing systems like Biofloc, Recirculatory Aquaculture System, and Aquaponics, as per the industry needs. Students learn to develop SOPs for commercial production of food and ornamental fish besides feed manufacturing and management, health management, water quality management. They develop skills for seed production of Indian Major Carps, Tilapia, Goldfish, Molly, Platy, Angel Fish, Guppy etc. The domain also helps students to be technically skilled and ready for career placements by enhancing their entrepreneurship development capabilities in the field of aquaculture, while being committed to use IoTs for developing smart intensive aquaculture for the commercial production of fishes.

FISH PROCESSING TECHNOLOGY

Course Overview

This domain empowers students to understand novel technologies applied in processing for the product development of dry fish, salted and smoked fish, frozen fillets, mince-based products like surimi, ham and sausage, etc. Students gain knowledge about fish by-product valorization into value-added products such as silage, fish protein hydrolysate, chitin, chitosan and collagen. Besides value added fish products, the domain provides hands-on experience on quality assessment of fish and fishery products using microbiological techniques like TPC, identification of fish spoilage organisms (S. aureus, E. coli, C. botulinum, etc), and various other biochemical techniques – Proximate composition, TMA, TVB-N, TBARS and PV. Students also experience educational visits to leading fish processing and training institutes like ICAR-CIFT and NIFPHATT. This domain makes students technically skilled and ready for career placements, while also helping them develop entrepreneur skills.

BACHELOR OF SCIENCE IN
DAIRY TECHNOLOGY

Course Overview

The Bachelor's degree in Dairy Technology provides support in developing technological expertise in unit operations and processing of consumer milk, traditional dairy products, fat rich dairy products, condensed and dried milk, ice-cream and frozen desserts, cheese and fermented milk products. The curriculum covers every aspect of dairy plant designing and layout, clean milk production strategies, processing and packaging machineries, chemical and microbiological standards, food safety and quality assurance, spoilage control and preservation, sensory and shelf-life evaluation, waste disposal and dairy business management skills. The department provides real-time industrial processing experience through its own dairy farm facilities for ration balancing, animal feeding and mechanized milking practices, through mini dairy processing and drying units for the production of pasteurized, homogenized, packaged consumer milk, dried milk powder, SMP, cream, butter and ghee, ice-cream, butter milk, flavoured milk, paneer, shrikhand, kalakand, rabdi, lassi, etc. It has advanced milk testing laboratories for milk platform tests, milk analysis and adulteration, proximate analysis, safety evaluation of chemical and microbial residues as per FSSAI guidelines, dairy starters and probiotic health food formulation.

Duration

Four years

Scope/Job Opportunity

- Food Safety Officer
- Milk Procurement Officer
- Dairy Extension Officer
- QA/QC Executive/Manager
- Milk Chemist/Microbiologist
- Logistics and Distribution Manager
- Dairy Plant Manager/Technical Officer
- Dairy Consultant | Dairy Entrepreneur
- Dairy Plant Supervisor
- Product Development Officer
- Dairy Process Engineer
- Higher Study (M.Tech./PhD)

Eligibility Criteria

- 10+2 (Physics/Math, Chemistry, Biology) – 50%

Placements

- Multi-National Companies: Nestle, ITC Ltd., Crafts Foods, DANONE India Private Ltd., Schreiber Dynamix, DeLaval Pvt. Ltd., Tetra Pak, etc.
- Cooperative Sectors: GCMMF (AMUL), KMF (Nandini Dairy), BSMCF (Sudha Dairy), Visakha Dairy, OMFED, KCMMF, Dudhsagar Dairy, Sumul Dairy, Banas Dairy, Baroda Dairy, Vasudhara Dairy, etc.
- Government/Semi-government organizations.
- Private Dairies: Mother Dairy, Milk Mantra, Pragati, Paras Dairy, Vadilal Dairy, Kwality Walls, Prabhat Dairy, Jersey Dairy, Hutsun Agro, Verka, Heritage Foods, Parag Milk Foods, etc.

DAIRY PROCESSING AND DEVELOPMENT

Course Overview

This domain provides hands-on experience of various dairy processing operations such as pasteurization, homogenization, bactofugation, sterilization, fermentation, packaging and preservation techniques. Students learn and develop skills to handle unit operations and assembling of different dairy processing equipment. They also learn to use equipment for proximate analysis, procurement and adulteration testing, quality and safety monitoring, legal standards and herbal dairy formulations of consumer milk, traditional dairy products, fat rich dairy products, condensed and dried milk, ice-cream and frozen desserts, cheese and fermented milk products. In addition, students are involved in developing innovative research and development of dairy products viz. probiotic dairy foods, and quality/safety assessment.


Centurion
UNIVERSITY

BACHELOR OF SCIENCE IN PHYTOPHARMACEUTICALS

Course Overview

The Bachelor's degree in Phytopharmaceuticals was initiated after receiving requests from industrial partners like Himalaya Wellness, Dabur and Emami, to fulfil their skilled human resource requirements. The focus of this course is on delivering the entire value chain of herbal drug industry – starting from cultivation of MAPs to marketing of dosage forms. Hence, students receive training on cultivation and collection of medicinal and aromatic plants like Liquorice, Senna, etc., followed by their authentication with morphological and anatomical features, and DNA barcoding, and then the extraction of active principles from the raw drug by Soxhlet, SCF, and subcritcal extraction methods. Students are trained further to characterize and separate the molecular constituent from the extract by UV spectroscopy, paper chromatography, TLC, and HPLC, at our laboratories. These isolated molecules are then transformed to medicinal and cosmetic formulations like churna, kwatha, fanta, kalaka, gutika, lehya, kwatha churna, soap, hand wash, sanitizers, shaving cream, shampoo, etc. On action learning mode, students are involved in plant tissue culture, monitoring the secondary metabolite production, designing silico drug, and developing microwave assisted extractor as major and minor projects. Apart from that, students also learn about the clinical trial procedure, international herbal drug and nutraceutical regulations, and good manufacturing practices to improve their job competency. With emergence of extensive application of computation in pharma and healthcare industries, the university is empowering students with smart courses like data science, machine learning, and robotics to keep them competent.

Duration

Four years

Scope/Job Opportunity

- MAPs Entrepreneur
- R&D Associate (Herbal)
- R&D Associate (Nutraceuticals)
- R&D Associate (Cosmetics)
- Process Engineer (R&D)
- R&D Associate (Essential Oil and Perfumery)
- Research Associate (Regulatory Affairs)
- Research Associate (QC/QA)
- Production Supervisor
- Packaging Supervisor
- Process Engineer (Extraction and Scale-up)
- Executive Manager (MAPs Farming)
- Manager (Sales) | Medical Coder
- Biomedical Data Scientist

Eligibility Criteria

- 10+2 (Physics/Math, Chemistry, Biology) – 50%

NUTRACEUTICAL

Course Overview

With this domain, students learn the formulation, processing, manufacturing, and packaging requirements of nutraceuticals. The focus is on blending conventional biological sciences with modern genomic and proteomic technologies of manufacturing and analysis of nutraceuticals. Here, students also learn extraction technologies like Soxhlet, solvent and super critical fluid extraction in Gram Tarang Foods, and analytical techniques like HPLC, spectroscopic analysis, isolation of the active food ingredients like 6-gingerol, curcumin, lutein, etc. In collaboration with Himalaya Wellness, GT Foods, and Emami for the development of cosmetic and medicinal products, their packaging and marketing, students get the real industry experience.

MASTER OF SCIENCE IN AGRICULTURE

Course Overview

The university offers M.Sc. Agronomy (2 years) where the ICAR curriculum is adopted. Designed to provide smart technologies for crop and soil management targeting agricultural sustainability, the course emphasizes on various aspects of smart agriculture. The focus area of research includes precision water management by IoT, Paddy Predict and Kalgudi App based rice monitoring and nutrient optimization, UAV-based image capturing for crop and soil monitoring and management, soft-tool-based nutrient management (Nutrient Expert, LCC, CCM, Crop Manager) in rice and corn, organic farming, farming system, and plant nutrient management by nano-fertilizers in corn and finger millet. The department works together with ICAR institutes, NSDC, RCOF, other universities and private organizations such as Centre for Sustainable Agriculture, Sunmoksha Power Pvt. Ltd., Kalgudi, IFFCO Kisan, and so on. Students are exposed to various activities carried out at Centre for Smart Agriculture that provides them with knowledge on real-time application of smart tools for future agriculture. The department has 20+ learned faculty with professional experience, well-equipped laboratory set up and automatic weather station. After completing the PG course, students get the opportunity to pursue higher studies or work in government/private seed and agrochemical sectors.

GENETICS & PLANT BREEDING

Course Overview

The Department of Genetics and Plant Breeding, M.S. Swaminathan School of Agriculture, offers M.Sc. (Ag.) in Genetics and Plant Breeding (2 years) as per the ICAR curriculum. Apart from disseminating the green revolution breeding concepts, it focuses on the advanced techniques, including speed breeding, marker-assisted breeding, association mapping, genomics-assisted breeding, and haplotype mining. Students get hands-on experience on different molecular techniques, such as PCR-based molecular marker analysis, gene expression study via real-time PCR, and genome sequencing on Nanopore Sequencer. Following the farm to fork concept, students do research in dedicated fields and participate in crop production. The curriculum concentrates on the field research of different crops, including cereals (paddy, maize, and millets), legumes (green gram and black gram), and oilseeds (sunflower, brassica, and groundnut) as per the agro climatic region. Additionally, students get the benefit of different study tours, exchange programs, and development programs at the partner institutes, such as ICAR institutes (IIVR, IIHR, and NRRI), and private organizations (ProFarm Seed India Pvt. Ltd., and Genotypic Technology Pvt. Ltd.). Besides, the university encourages the entrepreneurial spirit among students through its in-house incubator. Students graduating from this program get job opportunities in seed companies, consulting farms, crop biotechnological companies, and can also get opportunities for further research.

SOIL SCIENCE & AGRICULTURAL CHEMISTRY

Course Overview

M.Sc. (Ag.) in Soil Science is adopted by following the ICAR curriculum.It believes in digitalization of agriculture, and focuses on UAV-based image capturing through hyperspectral camera, soil analysis / soil mapping by GEE, storage of soil test data in Kalgudi App, and the application of nano nutrients to crops. Further, the department provides service to the farmers by testing the soil. After completing M.Sc. (Ag.) in Soil Science, students can opt to carry out research on physio-chemical and biological soil properties, and crop nutrient management. The lab is well-equipped with digital soil testing meter, UAV and hyperspectral and multispectral camera along with other instruments.

AGRICULTURAL EXTENSION & EDUCATION

Course Overview

The Department of Agricultural Extension and Education provides students the opportunity to pursue M.Sc. degree. Along with proper academic facilities, the department enables students to get field exposure through its five adopted villages. The university extension system includes several schemes and programs like NSDC funded project 'KUS', which covers 25 districts in Odisha. With a proper amalgamation with technologies creating a new path of extension-communication system (ARVR system for farmers), the department is running Agri-Clinic and Agri-Business Center Scheme, a flagship program of the Government of India.

HORTICULTURE (VEGETABLE SCIENCE)

Course Overview

M.Sc. (Hort.) Vegetable Science programme started in 2017 as a statutory department of MSSSoA, Centurion University. The aim of the course is to provide advanced instruction in horticulture and research experience in an area of particular interest to students. All the analysis of this program is linked with the well-equipped M.Sc. Horticulture lab, and in association with other hi-tech labs like Genetics & Genomics lab, Molecular lab, Biotech lab, Biochemistry lab, etc. The research trials are conducting at Horticultural Research Farm (HRF), having a total land area of 15 acres. The objective of the HRF is to develop the technology for scientific vegetable cultivation in Odisha and to educate students, farmers and stakeholders. The mandate of this course is to build professional human resources, skills and technology in vegetable science through higher education, research and extension. The department also has a collaboration with IIVR, Varanasi; CHES, Bhubaneswar; CTCRI, Bhubaneswar - for accomplishments of research work.

ENTOMOLOGY

Course Overview

The Department of Plant Protection is one of the most active departments under the M.S. Swaminathan School of Agriculture. Initially, the department was offering only undergraduate courses of Entomology. However, to keep pace with the advancement of science, need of farmers and demand of market, this department is now ready to offer M.Sc (Entomology) courses. This department is well-equipped with laboratory facilities for research and extension. It has a scientific apiary unit and an advanced biocontrol laboratory. Simultaneously, this department is maintaining an insect museum and a live culture of stored grain pests in a systematic manner. In order to update and augment their knowledge, the department has been very active in faculty recharging strategies by attending workshops, trainings, conferences, etc.

Course objectives:

- Identification of insect pests and their natural enemies.
- Training to devise strategies for the management of insect pests.
- Addressing the farmer's problems with regard to insect pests of regional and national significance and their management.
- To address environmental issues in relation to the use of agro-chemicals in insect pest management by adopting biointensive and integrated approaches.
- To develop skills on experimental designs, analytical techniques, research data computation, and statistical analysis.

PLANT PATHOLOGY

Course Overview

M.Sc. in Plant Pathology aims at providing advance knowledge and skill in solving plant disease related problems. Plant pathology at M.S. Swaminathan School of Agriculture is well equipped with infrastructure that provides students expertise and hands-on training to carry out lab experiments related to identification, morphological and biochemical characterization of plant pathogens, host pathogen interaction studies, disease management experiments, plant disease epidemiological work, etc. The department also houses specialized laboratories working on bio fertilizers, bio pesticides and commercial mushroom spawn production, which provide students the exposure to advanced research in related fields. Postgraduates in Plant Pathology are eligible for the post of Agriculture Research Scientist under ICAR, Asst. Professor in Central/State agricultural universities, and Subject Matter Specialist in Krishi Vigyan Kendras. They also get exciting offers from various multinational companies to work as scientists or marketing experts.

SEED SCIENCE & TECHNOLOGY

Course Overview

Students under this programme can perform their research on various aspects of seed production, seed invigoration, seed priming, pelleting, developmental pattern, etc. The nature of physiological and biochemical activities can also be pursued in grain filling period as well as seed deterioration at the stage of storage, considering various agricultural and horticultural crops. The protocol for large scale multiplication of varieties, production of hybrid seed and standardization of breeding and molecular aspects are also included in the programme. The Department is well-equipped with seed testing, seed sampling, seed germination instruments, which are the ground for Seed Technology. Students also get to experience different crop stages – right from sowing to harvest under field and polyhouse conditions. To impart vast knowledge to students, the department has collaborated with ICAR-Indian Institute of Vegetables Research, Varanasi, and ProFarm Pvt. Ltd., Telangana. It also helps students connect with several public and private firms to pursue their career as seed technologists in R&D sectors, entrepreneurs in seed production, or quality control officers..

Course objectives:

- To strengthen post-Graduate teaching, research and development related to Seed Production Technology and impart training for entrepreneurship in commercial seed production.
- To ensure basic research related to genetic purity, seed storage and testing under laboratory conditions.
- To create awareness on Seed Biology, Seed Physiology, Seed Pathology, Seed Entomology, Seed Processing and Seed Marketing activities in different field crops thereby improving the productivity.
- Characterization of improved varieties/hybrids using morphological, biochemical and molecular markers for varietal identity, quality control and marketing.

PRODUCTS MANUFACTURED AT CENTURION

AWARDS & ACCOLADES

Student Achievements

WorldSkills at National Level

- Gold medal in Health and Social Care (For the first time in Odisha)
- Gold in CNC Turning | Bronze in Joinery (Wood works)

- Received a **Patent** for "Automated Elephant Detection System to desist Railway accidents by unifying AI and IoT"
- Participated in the Dassault Systèmes and awarded one of the **best projects** – Living Heritage Project - developed model of Konark Sun temple in the 3D Experience Platform.

"…In India, the Centurion University of Technology and Management (Odisha) … the only State-enacted University in the private sector with its strong industrial linkage through its Social Entrepreneurship Outreach (Gram Tarang) and its focus on community – has excelled in providing skills to students from rural areas."

Government of Odisha, after careful consideration, have been pleased to accord recognition to the Centurion University of Technology and Management as Skill University.

- Research Report of Ernst and Young title, "Role of Higher Education in Creating Sustainable Livelihoods and Social Enterprises" is on the Model of Centurion University, published on 24th November 2016.
- NITI Aayog named Centurion University - Gram Tarang as the best practice reference point in the State of Odisha in their report titled, "State Forward: Best Practices from our States" released by the Honourable Prime Minister on 29th September 2016.
- Cited by name as a model in the debate of the General Assembly of United Nations on Right to Education. CUTM has been eloquently mentioned in the UN Secretary General Report on Right to Education (67th General Assembly, 2012)
- Acknowledged by the United Nations for works done in reaching out to the underprivileged through employment linked skill development.
- Case study by UNESCO, "Centurion University model of skilling" in the UNESCO – PROSPECTS: Volume 44, Issue 2 (2014).
- Case study of Wharton University of Pennsylvania, "Startups Spot Opportunity in Training India's Informal Workforce" for people living in the Naxalite-infested regions in Odisha and Andhra Pradesh in June 2013.
- In Australia India Institute Report, titled "A Very Short Policy Brief: Sustainable Skill Development" in November 2016, the first reference of the policy brief is of Gram Tarang.
- Showcasing of Centurion University's "Social Enterprise: A Global Outlook" in the Going Global Conference at Cape Town by the British Council in its international research report with a sample size of 200+ Universities where Centurion is the only reference from Indian subcontinent.
- Centurion University has become "Dassault Systèmes Academy Member" and it is the 1st Academy Member of Dassault Systems in India.
- Citation by The World Bank in its report (August 2015) on, "Governance for Quality in Higher Education in Odisha, India" as a unique model reiterating the significant edge in the domain of higher education.
- **The University has published 70 Patents, 7 Copyrights, 2 Design Patents and 2 patents granted.**

Centurion
UNIVERSITY
Shaping Lives...
Empowering Communities...

Campuses: Paralakhemundi | Bhubaneswar | Vizianagaram | Rayagada | Balangir | Balasore

For admissions, Call: 82600 77222

CUTM Odisha – Website – www.cutm.ac.in

CUTM Andhra Pradesh – Website – www.cutmap.ac.in