



Shobhit University

(Shobhit Institute of Engineering & Technology)

EDUCATION EMPOWERS

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NAAC Accredited

CENTRE FOR AGRICULTURAL INFORMATICS AND E-GOVERNANCE RESEARCH STUDIES (CAIRS)

e-Governance in Farming Sector: Road Map to Strengthen Agriculture & Food Security



CENTRE FOR AGRICULTURAL INFORMATICS & E-GOVERNANCE RESEARCH STUDIES



"While delivering his Inaugural Address, Hon'ble President of India, Shri Pranab Mukherjee, the and Chief Guest of the Asia-Africa AgriBusiness Forum, on 4th February 2014, highlighted the importance of "strategic partnerships for adoption of best practices and to maximise benefits through technology transfer" in the journey toward achieving food security. He has further said that : (a) as demonstrated by the Action Plan for Information and Communication Technology (ICT) for Agriculture, launched in 1995, India has recognized ICTs to be powerful catalysts for sustainable agricultural development, (b) there is need for ICT to facilitate the development of extension services, value chain, production and marketing systems, and agriculture risk management, (c) the ICT for Agriculture Plan calls for strong cooperation between Asia and Africa, and (d) during the ICT4Ag Conference, in Kigali, Rwanda, from the 4th to the 8th of October 2013, stakeholders "highlighted the need to have a South-South Cooperation Programme on ICT for Agriculture".



"While addressing the Agricultural scientific community on the 86th Foundation day of ICAR, at the NASC Complex in Delhi, on 29th July 2014, the Hon'ble Prime Minister of India, Shri Narendra Modi, has emphasized: (a) creation of a talent pool of young, educated and progressive farmers, and agricultural research scholars in all districts of the country", (b) Development of a digitized database of all agricultural research in the country, (c) Reaching out Agriculture technology to the farmers".



"While addressing in the Parliament of India on 11th June 2014, the Hon'ble Prime Minister of India stressed upon: (a) development through good governance, (b) Improving supply-side constraints on Agro and Agro-based products, (c) modernization of farming practices, (d) national land use policy, (e) availability of real-time data on agricultural products, (f) farm health management (soil health card), (g) "lab to land", (h) "per drop more crop", (i) multi-skill development, (j) Youth led development, (k) Internet connectivity to villages, and (l) digital India."

We, at the Shobhit University, have established "Agricultural Informatics Research, Development and Education – An e-Governance Paradigm in Farming Sector" Programme, for competency development in Agricultural Sciences Graduates, who pass out annually, about 25,000 in numbers in the Country, facilitating them to apply ICT for infusion and diffusion in the farming sector for productivity increase and employment generation in the Indian agricultural sector; and with the Vision "to leverage on a mix of emerging and existing technologies for effective and inexpensive Information and Communication Technologies (ICTs) penetration in Agricultural development for productivity increase and income rise", and "to be the global lead enabler in innovating solutions through informatics for agricultural development and prosperity".



Kunwar Shekhar Vijendra, Hon'ble Chancellor, Shobhit University

Genesis

Indian Agriculture sector is the largest employer in India's economy but contributed around 13.7% in 2012-13 and 13.9% in 2013-14 to India GDP at 2004-05 prices. Rural India has about 70% of India's population, as its demographic dividend, and is in need of better roads, potable water, education, health, supply chain, electricity, broadband, job creation, security and linkage to input and output markets, and technology. To make farming competitive and profitable, there is an urgent need to step up investment, both public and private, in agro-technology development and in creation of new/modernisation of existing agri-business infrastructure.

In India, there are about 138.35 Million farm households needing "scientific agricultural knowledge and innovation", over and above their traditional knowledge, to increase their agricultural productivity, and strengthen supply chain and value chain of agricultural and food production systems. Every activity in the agricultural supply chain involves "creation, processing and communication" of information. The transformation from agrarian to industrial and now to Information and knowledge society has largely been brought out, as a result of the accumulation of knowledge and the advancement of ICTs.

Agriculture is multidisciplinary subject consisting of crop husbandry, horticulture, forestry, animal husbandry and fisheries, etc., and each of which has its own importance. The dissemination of agricultural information to the Indian farmers is a major challenge. Indian farmers are multi-skilled and our farms are multi-product bio-factories. India has more than 960.58 Million Mobile handsets (www.trai.gov.in) as of 10th April 2015 and ranks no.2, after China, in Mobile Phone use.

India has emerged as an Investment Destination for AgriBusiness and Food Processing Sector, in view of the sound factors viz., Supply-Side Advantages, Supply Demand Growth, Conducive Policy Environment, Increasing Investments, and Strategic Location. According to Mckinsey Global Research Institute's Report "12 Technologies to empower India" (2014), the estimated collective impact of technology interventions (mainly Information technology) in Agriculture is US \$45 Billion to US \$80 Billion by 2025.

Informatics Development

Informatics is the Science of Information, Engineering of Information Systems and Information Processing. It is the multidisciplinary field which deals with information analysis, its collection, transmission, storage, utilization and dissemination. The field is closely related to computer sciences as well as communications, mathematics, electronics, philosophy, management and library science. Informatics and information sciences became popular since the first digital information devices were introduced.

Development informatics – the academic sub-discipline that studies the role of Information and Communication Technologies in development (ICT4D) – represents the intersection of two main disciplines: development studies and informatics. Innovation is the application of new knowledge to production processes, i.e., the appropriation of new knowledge by the decision-maker (in this case, the producer). Big Agricultural Data needs to be combined with the latest S&T and engineered products to boost efficiency, productivity and production.

In developing economy, agriculture retains its primary importance in terms of its value and employment generation. Strategic intervention of ICTs in agricultural inputs, production and output systems, integrate and facilitate trade, technology and food security, through effective value-chain and supply-chain models. This is a priority assignment.



Fusion of Technologies for Sustainable Agricultural Development

Information and Communication Technology (ICT), Bio-Technology and Environment Technology are viewed as “the drivers” of globalization, with their complementarities of liberalization, privatization and tighter IPRs. Developments in enabling technologies such as Geomatics which is the synergy of multiple disciplines such as Geographical Information System (GIS), Remote Sensing, Image processing, GPS, Cartography, Database Technology, Data Analytics, Experts system, Spatial Decision Support System and other geo-related Sciences, facilitate “Informatics-led Agricultural development”, which will be a great step towards Precision Farming in India.

This “Informatics-led agricultural development” is expected to facilitate about 92.83 Million marginal farmers, 24.78 small farmers, 13.90 semi-medium farmers and 0.97 million large scale farmers of the Country. Each Indian farmer desires to become an “e-farmer”, in view of vast development skills and agricultural knowledge, through their mobile phones using Indian language computing methods.

Agricultural Informatics

Agricultural Informatics is the Science of agricultural Information, Engineering of agricultural Information Systems and agricultural Information Processing. Agricultural Informatics domain deals with ICT Innovation in Agriculture, Food and the Environment. It is essential for agricultural sustainability, food security, environmental research, bio-energy, natural resource conservation, land use management, carbon accounting, global climate change, health research, agricultural industry, commodity trading, economy research, education, decision making and policy formulation etc.

Agricultural informatics, also referred to as “e-Agriculture”, is emerging field which combines the advances in agricultural informatics, with agricultural development and entrepreneurship to provide better agricultural services, enhanced technology dissemination, and information delivery through the advances in ICT and the Internet.

Over the last few decades, several research and development efforts have been made to exploit the potential of Information and Communication Technologies (ICTs) to improve the efficiency of production in agriculture and to achieve sustainable development. Linking agriculture systems to sustainable development has challenged the efforts in adopting disruptive technologies that has provided opportunities to foray into the area of Agricultural Informatics.

Globally, Agricultural Informatics, as an area, has been focusing on creating new breed of human resources to take up the renewed challenges in conceptualizing, developing, deploying and managing farmer-centric intelligent supply chains, proactive environmental impact oriented interventions, while ensuring sustainable agricultural systems.





Emerging Trends in Digitalization – Digital India 2014

Scientific innovations happening in electronics globally, promotes research and development in higher-end computing technology and which, in turn, facilitates advancements in Information Technology. Internet of Things (IoT) is promising to be the most disruptive technological revolution, and with the advent of World Wide Web (WWW), and is expected to result in more than 100 billion uniquely identifiable objects, being connected to Internet by 2020. This is a Research and Development value chain.

Advances in Sensor and Computer Technology are revolutionizing the way remotely sensed data is collected, managed and analysed. Extracting information from remotely sensed data turns out to be a major computational challenge. SMART Agriculture is the application of advanced IOTs and Computer Technology. Advances in Computational Informatics, Computational Intelligence and Computational Biology are watched with keen interest.

Data Analytics and Modelling – the growing recognition of the potential values of all data – compels the developers to build in analytics from the start, making it an inherent aspect of Information Technology delivery. Data Security issues force “security architecture” in place. Open Data and Open Gov using open standards make the Governments transparent to the public.

While many challenges remain, Cloud Computing is changing the face of enterprise computing. Computing is increasingly mobile. Digital Storage is where the most valuable assets of most business live. Providing access to assets and providing assets, through Internet, are crucial to business survivability. Net neutrality issues are confronting the common public.

The emergence of Mobility, Social media, Big data and Cloud is creating enormous challenges for Information Technology to reliably deliver application to end-user. Wireless Power, Wireless Internet, and Near Field Communication (NFC) are the future and will make chargers and cords irrelevant. Reduced barriers to entry, new opportunities for exploiting information, and unprecedented speed to market are driving the digital industrial revolution – “Digital India” and “Make in India” initiatives in the Agricultural, Rural development & Social Sectors.

There have been emphasize upon (a) development through good governance, (b) Improving supply-side constraints on Agro and Agro-based products, (c) modernization of farming practices, (d) national land use policy, (e) availability of real-time data on agricultural products, (f) farm health management (soil health card), (g) “lab to land”, (h) “per drop more crop”, (i) multi-skill development, (j) Youth led development, (k) Internet connectivity to villages, and (l) digital India, (m) creation of a talent pool of young, educated and progressive farmers, and agricultural research scholars in all districts of the country”, (k) Development of a digitized database of all agricultural research in the country, and (l) reaching out agricultural technology to the farmers. As it is reported, there has been a strong

but basic problem of “non-availability of real-time data on agricultural products” for decision support in the Government.

The Digital India Programme is envisaged to provide “thrust to Nine Pillars of Growth Areas” viz., Broadband Highways, Universal Access to Mobile Connectivity, Public Internet Access programme, e-Governance: Reforming Government through Technology, e-Kranti (empowerment) : Electronic Delivery of Services, Information for All, Electronic Manufacturing, Jobs in IT Sector, and Early Harvest programmes. The thrust areas of the e-Kranti (NeGP 2.0) - electronic delivery of services – are: (a) Technology for Education (e-Education), (b) Health (e-Healthcare), (c) Farmers, (d) Financial Inclusion, (e) Planning, (f) Justice, (g) Security and (h) Cyber Security.

e-Governance in Agriculture is envisaged as “Reforms through ICT” for sustainable Agricultural development in India. ICT for Agriculture (ICT4Ag) has been visualized and understood to facilitate advancing reforms in various sub-sectors of Agricultural system. There have also been recommendations to “promote the application of scientific solutions, information and policies conducive to increased and sustainable agricultural production yields, productivity and sustainable development” in such thematic conferences throughout the World.

The Current Status of Open Knowledge Resources in Agriculture in India needs a large scale of participation. The Gaps are expanding and Needs to improve Open Knowledge Access are to be addressed through Capacity Building. The Scope for further Collaboration – National and Global Agencies – is enormous but needs to be undertaken on priority basis. The “Content to Connectivity”, under the Digital India Programme, needs to be strengthened for Inclusive Growth and Development of Indian Agriculture.

OpenData, OpenGov, Open Technologies, Open Standards, Computational Informatics, Indian Languages Computing, JAM Number Trinity, BharatNet, RailNet, Digital Cable TV Network, Wi-Fi Network, Cloud Computing, Localisation(L10N) and Internationalisation(I18N) pave the way for bridging the development gaps.

Government's Nine Pillars for transforming India Union Budget 2016

- | | |
|----------------------------------|--|
| 1. Agriculture & Farmer Welfare | 5. Infrastructure Investment |
| 2. Rural Sector | 6. Financial Sector Reforms |
| 3. Social Sector | 7. Governance Reforms & Ease of doing Business |
| 4. Education Skills & Job Sector | 8. Fiscal Discipline |
| | 9. Tax Reforms |



Future technologies and ICT applications to enhance Food Security – A Global Outlook

The Global Environmental Change and Food Systems (GECAFS) Project has suggested a Food Systems Analytical framework (<http://www.gecafs.org>) to consider food security issues, in a comprehensive way, which include Food Systems activities –

- Producing food, implicating natural resources, inputs and technology;
- Processing and packaging food, implicating raw materials, standards and storage;
- Distributing and retailing food, implicating transportation, marketing and advertising;
- Consuming food, implicating food acquisition, preparation and customs;

These four food activities lead to nine outcomes under the three pillars that contribute to food security:

- Food availability – food production, distribution and exchange;
- Food access – food affordability, allocation and preference;
- Food utilisation – nutritional value, social value and food safety.

It is relevant to highlight the about 20 Technologies (the highest potential impact technologies are in bold) needed to enhance food security, as identified by the COST (www.cost.eu) Foresight 2030 Workshop (2009) on Food Security on the theme : “Benefitting from the Digital Revolution” , as follows:-

1. HPC (High Performance Computing)
2. Farm Automation

3. e-Commerce
4. Factory Automation
5. Low cost print technologies
6. e-learning
7. Supply Chain Management
8. Low cost spectroscopy
9. Geographical Information Systems (GIS)
10. Low cost sensors
11. Low cost detection kits
12. Algorithms environmental management
13. Smart Packaging
14. Laboratory Automation
15. Satellite Imaging
16. Low cost ubiquitous RFID
17. Bio-Informatics
18. Wireless Networks
19. Systems Biology
20. Semantic Web

The Site-specific techniques include using GIS database structures, handheld data capture devices, remote sensing equipment, UAVs, and database management, at different levels, in the supply chain. For years now, Drone advocates have cited precision agriculture—crop management that uses GPS and big data—as a way to boost crop yields and profits while resolving water and food crises.

Digital Networks for Farmers (DNF): A National Outlook

A Major Blueprint on “agricultural informatics” viz., AGMARKNET, AGRISNET, SeedNet, PPIN, FISHNET, APHNET etc., was made available to the Country through a National Conference on “Informatics for Sustainable Agricultural Development (ISDA-95), organized by the National Informatics Centre, in collaboration with the Ministry of Agriculture & Farmers' Welfare (earlier Ministry of Agriculture), held in May 1995, as follows:

AGRISNET* – an Infrastructure network up to block level agricultural offices facilitating agricultural extension services and agribusiness activities to usher in rural prosperity;

AGMARKNET* – with a road map to network 7300 Agricultural produce wholesale markets and 32000 rural markets;

ARISNET* – Agricultural Research Information System Network;

SEEDNET* – Seed Informatics Network;

CoopNet – to network 1,40,000 Agricultural Primary Credit Societies (PACS) and Agricultural Cooperative Marketing Societies to usher in ICT enabled services and rural transformation;

HORTNET* – Horticultural Informatics Network;

PPIN* – Plant Protection Informatics Network



Digital Networks for Farmers (DNF): A National Outlook

FERTNET** – Fertilizers (Chemical, Bio and Organic Manure) Informatics Network facilitating “Integrating Nutrient Management” at farm level;

VISTARNET** – Agricultural Extension Information System Network

APHNET**** – Animal production and Health Informatics Network networking about 42000 Animal Primary Health Centre;

FISHNET* – Fisheries Informatics Network

LISNET***** – Land Information System Network linking all institutions involved in land and water management for agricultural productivity and production systems, which has now evolved as “Agricultural Resources Information System”;

AFPINET – Agricultural & Food Processing Industries Informatics Network;

ARINET – Agricultural and Rural Industries Information System Network to strengthen Small & Micro Enterprises (SMEs);

NDMNET – Natural Drought Management Knowledge Network in India;

Weather NET* – Weather Resource System of India

(*) – Gone into Operational. (**) – Different Stages, (***) – Pilot Phase, (****) – Enriched with National Animal Disease Reporting System (NADRS) Project and (*****) - Pilot Stage.

[Source: Moni. M (2005) : “Mainstreaming ICT for fostering agricultural growth, poverty reduction and sustainable resource use to usher in rural prosperity”, presented in the 3rd International Conference on RURAL INDIA, organised by Bhoovigyan Vikas Foundation, Government of Andhra Pradesh and Sahanav November 2005, Hyderabad (India)].:

More than 800 websites are established in the Agricultural sector by the Government Departments both at Central, State and District Administrations. A major initiative of Agricultural Mission Mode Project (AMMP) for providing quality information delivery through 12 Clusters of Services, under the National e-Governance Programme (NeGP 1.0), was undertaken during 2007-08. The Ministry of Agriculture and Farmers' Welfare has established recently two national farmers centric Portals: www.farmer.gov.in, and www.mkisan.gov.in. Information on weather forecast from NCMRWF (IMD) is made available through www.mkisan.gov.in portal.

Strengthening the Digital Network for Farmers (DNF) over BharatNet/ Railtel/Cable TV etc. is need of the hour. The emergence of Social Media, Mobility, Analytics and Cloud (SMAC) Framework is creating enormous challenges for ICT to reliably deliver application to end-user.

Skill Development Programme - Bridging the Development Gaps in Human Resources

It is essential that “Develop Education through Skill” and “Develop Skill through Education” are interlinked so as to develop appropriate human resources from the educational institutions for meeting the twin development goals of “Digital India” and “Make-in-India”. Digitalization of industrial activities (Digital Industry Revolution) requires “cause and effect” changes in the way in which students are taught in the class rooms and their internship with Industry. There are challenges but vast and imminent opportunities are not to be missed. The trinity of “Knowing”, “Being” and “Doing” will enrich their competency. The widening gap of College Faculty and Research Scholars from the research requirements of the Industry needs to be arrested at the earliest.

While launching the Skill India Programme from Vigyan Bhawan, on

the occasion of the World Youth Skill Day (15 July 2015), the Prime Minister of India, Hon'ble Shri Narendra Modi said: “Technology is changing so rapidly that it is necessary to be dynamic to remain relevant. We have to map the strategy for the next 10 years of development. We have to have a futuristic vision, need to think what technology will be there in the next 10 years, and matching job creation with industry demand is the key to end unemployment. We have to make all our training institutions dynamic”.

Agriculture is an “engine of sustainable and inclusive economic growth, inflation management and rural development”. Competency Development in Agricultural Stakeholders is foremost important to get the desired impact of e-Governance and Informatics in the Agricultural sector.

Skill Development Programme - Bridging the Development Gaps in Human Resources

The 5th National CICON-2015 Conference of the Shobhit University held on 21st September 2015, had deliberated on the Theme : "Bridging the Development Gaps for Human Resources in Digital India Programme and Make In India Programme", in the following Technical Sessions :-

1. Agricultural & Rural Industry Digitalization : Education and Skill Development
2. e-Commerce, Banking & Financial Services and Insurance Industry Digitalization: Education & Skill Development
3. Agro-Forestry & Rubber Cultivation - Farming System & Industry Digitalization: Education & Skill Development
4. Digital India : e-Governance Service delivery (e-Kranti – NeGP 2.0), Government Process Re-Engineering, Software Process Engineering and Value Chain & Citizen Charter - Role of 4500 Engineering & 18000 Non-Engineering Colleges in India
5. Electronics & Telecommunication Equipment Manufacturing

Industry : Education and Skill Development

6. Advances in Open Technology : Open Data, OpenGov, Open Source, Indian Language Operating System & Software Tools : Education & Skill Development
7. Computational Intelligence, Computational Biology and Computational Chemistry : Education & Skill Development
8. Data Security & Social Network – Physical Security, Cyber Security, Network Security, Information Security, database Security etc. : Education and Skill Development
9. Computing & Communication Technology - Digital Storage Technology, Distributed Computing, Internet of Things (IoT), Wireless Power & Internet, Cloud Computing, Big Data Analytics etc : Education & Skill Development

In view of high success of these Technical Sessions, the University has planned to organize National Seminars on these sub-themes to promote among rural students.

Post 2015 Development Agenda (PTDA)

The year 2015 was momentous with the World and witnessed new agreements on Climate Change and Sustainable Development. For the 2015 Agreement under the United Nations Framework Convention on Climate Change (UNFCCC), India has taken steps through its Intended National Determined Commitments (INDC) on mitigation, adaptation, finance, technology and capacity building, covering all the national missions and other initiatives under the National Action Plan on Climate Change (NAPCC) as well as the State Action Plan on Climate Change (SAPCC). The National Mission on Sustainable Agriculture (NMSA) is one of the eight national Missions of the NAPCC.

At the end of 2015, the Millennium Development Goals was being replaced by the Post-2015 Development Agenda (PTDA). The PTDA includes "Food and Agriculture" which require, apart from the current focus on market prices and basic agricultural information, furthering research on using ICTs: to improve agricultural productivity and sustainable incomes; to manage and improve agricultural supply chains; to address food security, malnutrition and hunger, and to address land related issues such as land degradation, land management, and land rights and tenure. It is necessary to design agricultural data for re-use.





Necessity for establishing the Centre - CAIRS

An ICT-triggered rural knowledge revolution can help to break the barriers that stand between “localised rural economies” and the “globalised market”. Agricultural sector is fully endowed with, only ill-structured and semi-structured problems to be solved and hence adoption of decision support systems (DSSs) is required, based on database technology, statistical techniques, management sciences, knowledge bases, expert systems, AI techniques, web technology, internet technology, multi-media technology, software technology, mobile technology (3G, 4G), GIS technology and Remote Sensing Technology, Content management, modeling & simulation, forecasting, precision engineering (wireless and sensors), data / Knowledge mining, Knowledge discovery etc.

It is essential to leverage on a mix of emerging and existing technologies for effective and inexpensive ICT penetration for agricultural development of the Country. Agricultural Research Systems, Input Systems, Production Systems and Output System require to be built-in with effective ICT enabled “Information Systems”, capable of delivering services, in Indian local languages, for enhancing agricultural production, productivity and income rise, decision making, planning, monitoring and intervention in the interest of all stakeholders.

The challenge is to prepare about 100,000 Agricultural Sciences Graduates ready, through agricultural informatics, for undertaking S&T based agricultural development and to rejuvenate and usher in agricultural dynamism in the country, by 2025.

There lies Opportunities to establish “ICT enabled Value Chains”: ICTs Diffusion and Infusion through stakeholders participation, through “Access layer”, “Distribution layer” and “Network layer”; (spanning the breadth of the agricultural industry, at all scales of organization from farmer to cooperative and professional bodies, from farm machinery vendors, fertilizer and chemical companies, insurance, regulators, and commodities, to agronomists, consultants, and farm advisors)

There is a need for establishing a premier Institution for Agricultural Informatics Research, Education, Development, Extension and Training in the country, to bridge the development gaps existing in human resources for undertaking “digitalization” process in the Agricultural sector.

Vision:

1. To innovate pathways for fostering use of Information and Communication Technologies (ICTs) for sustainable agriculture;
2. To show case best practices in using ICT enabled solutions for managing value chains in Agriculture sector.

3. To be the global lead enabler in innovating solutions through informatics for agricultural development and prosperity.

Mission

1. To create pool of knowledge, infuse appropriate skills and competence by establishing rigour in quality research and teaching, especially in the areas of Agricultural Informatics & e-Governance Systems, for undertaking Science and Technology based interventions in agricultural development.

Outcome

1. Development of Graduates and Post Graduates from multi-disciplinary areas to take up, challenging and innovative assignments in Agricultural System built-in with effective ICT enabled “Information Systems”.
2. Competence in stakeholders and human resources in agriculture sector to innovate, use and adopt ICT enabled services for augmenting agriculture system through management development programmes.
3. Identifying contemporary research areas and create enabling ecosystem through seed funding, incubating and piloting cutting edge ICT enabled interventions by engaging researchers.
4. Disseminating knowledge pool created through publication of contemporary research findings, policy papers and conducting conferences, workshops for effective networking.

To achieve the stated Vision and also to facilitate PTDA, the SHOBHIT University has established the Centre for Agricultural Informatics and e-Governance Research Studies (CAIRS), with Prof. M. Moni, as the Programme Director and Chairman of the Centre. Prof. M.Moni has a glorious career in the field of Agricultural Informatics and e-Governance in India, spanning more than 3 decades and also was the former Director General, National Informatics Centre, Government of India.

The Centre for Agricultural Informatics and e-Governance Research Studies (CAIRS), first-in-kind in India, has its mission to impart conceptual, theoretical and applied knowledge of ICT, Management, Informatics, and Agriculture, to the Graduates of Agricultural and Allied Sciences.

The Centre aims to generate human resources with the right skills, knowledge, aptitude, entrepreneurial, and leadership qualities for effective design and implementation of ICT enabled agricultural production, supply-chain, value-chain and extension services to cater to the needs of Agricultural sector stakeholders (farmers, industry, research, extension and scientific organizations, etc), in

Necessity for establishing the Centre - CAIRS

global era, through the emerging field of Agricultural Informatics, e-Governance, AgriBusiness Management and Language Computing.

To achieve this goal, the Shobhit University has launched, during this academic year, Programmes and Activities as follows:-

A. Academic Programmes:

1. M.Tech Programme (2-Year programme) in Agricultural Informatics for Agricultural & Allied Sciences Graduates;
2. MBA in AgriBusiness Management (2-year programme) for Agricultural & Allied Sciences Graduates;
3. B.Tech (4-Year Programme) in Agricultural Informatics; and
4. Competency Development Programme for Agricultural Stakeholders (2 week and 4-week programme) on e-Governance in Farming Sector.

B. Management Development Programmes.

C. Research Labs and Innovation Centres.

D. Conference, Workshop, Seminar and Journals.

The Shobhit University has planned to conduct International Workshop Programme (IWP), with aim to meet following objectives:-

1. To elicit global references, standards and benchmarks to enrich contents and pedagogy of the M.Tech Course being conducted at Shobhit University, India;
2. To explore possibilities of institutional linkages internationally acclaimed Academic Institutions, Research Institutions, Agricultural (Agri and Agro) Industries, and Government

Institutions. This will also include exchange programmes for faculty and students;

3. To deliberate on the global perspectives on “agricultural informatics” and strategic directions for innovations in ICT for effective farmer centric services;

Such International Workshop Programmes (IWPs) are envisaged to workout “indicated potential” as follows:-

1. Global perspectives on agricultural informatics and benchmarks;
2. Agricultural-informatics and its role in augmenting livelihoods in developing countries;
3. Agricultural informatics and sustainable development;
4. Agricultural informatics and value chain management;
5. Education in agricultural informatics – trends and opportunities for fostering research, development, incubation, deployment and scale up of interventions;
6. Advances in agro-informatics: academic-research-applications related convergence for sustainable development.

This Centre envisages having linkages with ICAR Institutions, CGIAR Institutions, Indian Central and State Agricultural Universities, Farm Science Centres, and Agricultural Universities abroad.



CENTRE FOR AGRICULTURAL INFORMATICS & E-GOVERNANCE RESEARCH STUDIES



Informatics Development Research Activities

Notwithstanding many State and Central Government Organizations having been involved in development and enhancement of ICT based tools and services, this Centre has planned to adopt a focused approach and a common platform “to leverage” the existing and emerging technologies for development of an effective and inexpensive ICT system for agricultural development. This includes – Input System, Production System, Output System and (Non-Farm) Rural Development, to ensure:

- Agricultural Knowledge Management system for farmers;
- ICT enabled Supply-Chains & Value-Chains;
- Development of Agricultural Information Utility (AIU) – an Internet based Meta-organization, through institutional partnerships and initiatives;
- Leveraging Digital India Rural ICT Infrastructure for Agricultural developments/e-Governance System;
- Agricultural and Rural Industries digitalisation : Education and Skill development;
- Adoption of Open Data / Open Gov Standards and Open Source Technology tools;
- Development of Expert System/ Decision Support System/ Management Information System, Farm Health Management & Intelligence System for Plant Health, Animal Health, Soil Health, Fishery Health and Water Quality etc;
- Agricultural Marketing Information System;
- Indian Language Technology Applications;
- Traditional and Localized Knowledge base for production, processing and storage technologies;
- Development of open technology computing facilities;
- Establishment of system for data analytics/ mining/ modelling/ simulations and Big Data Analysis;
- RS, GIS, GPS, IoT technology applications in agriculture;
- Strengthening of Digital Networks for Farmers and Farming (DNF) and JAM Number Trinity Applications;
- Networking with Agri-clinics and Agri Business Centres, Farmer Producers Organisations (FPOs) / SHGs, Farmers Clubs of NABARD, etc;
- Networking with Farmers kNowledge Groups (FNGs).

M.Tech in Agricultural Informatics Course

(Duration: 2 Years – 4 Semesters – a batch of 40 Students)

The Indian Agricultural Higher Education System produces about 15000 in number from about 400 Agricultural Colleges. They have the bigger role to play in realizing “Agricultural Informatics” to the Farming community in the languages known to them. In addition to the students, the faculty members have further greater role to design localized agricultural advisory system using ICT Tools. The National Agricultural Research System (NARS) of India has more than 30,000 Scientists and Technical professionals working in 100 ICAR institutions, 65 State Agricultural Universities, 400 Agriculture College and 650 Farm Science Centres (Krishi Vigyan Kendras). The Indian Agricultural Management & Extension System has more than 75000 agricultural professionals. These Professionals are required to be converted as “Agricultural Informatics Scientists”, in the days to come.

Agricultural Informatics has emerged as a discipline out of Synergisation between Computer Science & Technology and Agricultural Science & Technology. Agriculture Commodity Seeds is an embodiment of Knowledge System with built-in “Object programming”. Acceleration of Computational Informatics in the

field of agriculture development is possible through “formal education” discipline – Agricultural Informatics – for development and utilization of appropriate information system and technology for sustainable agricultural development.

This is a priority engagement for India, as the Indian Agriculture faces challenges due to Biotic and Abiotic stresses (impact of disease, insect and pest infestations, soil salinity, heat, cold, drought, flood etc.), Climate Change, Changes in food habits and nutritional requirements, Population pressure, Pressure of global trade and competitiveness, and Technological development.

This proposed Course of the SHOBHIT UNIVERSITY looks forward to have collaboration and participation from the Agricultural Research, development, Management, Education and Extension Institutions in the country for increased productivity and efficiency.

This Course provides facility to attain 6-Month Certificate Programme as well as 1-Year Post Graduate Diploma for the Working Professionals, during this 2-Year M.Tech Programme.

CENTRE FOR AGRICULTURAL INFORMATICS & E-GOVERNANCE RESEARCH STUDIES



M.Tech in Agricultural Informatics Course

(Duration: 2 Years – 4 Semesters – a batch of 40 Students)

In collaboration with the Department of Agro-Informatics Engineering and the Department of Computer Science & Engineering of the Shobhit University Meerut, Department of Agricultural & Environmental Engineering of the Shobhit University Gangoh, this Centre offers the M.Tech in Agricultural Informatics Course. The Course details are as follows:-

Semester – I

1. Introduction to Information Technology
2. Programming & Programming Paradigms
3. Farm Sector Infrastructure
4. Agricultural Economics and Trade (including Trade Statistics, Market Intelligence and supply chain logistics)
5. Web Designing, Web Services, Web GIS and Internet Applications
6. Agricultural & Food Processing Technologies (Harvest and Post Harvest Technologies, value addition, products development)
7. Agricultural Production Systems Management (Sustainability, Hi-Tech Agriculture and Modeling, Farm Mechanization and Resource Mapping)
8. Seminar / Project Work (including Field Work)

Semester – II

1. Database Technology and Applications
2. Information resources, Information Retrieval and Technical Communication
3. Software Engineering and Quality Management
4. Quantitative Techniques & Data Analytics & Modelling
5. Agricultural Finance, Insurance and Agri-Business Management
6. Agricultural Extension, Methods and tools of communication
7. Seminar / Project (including Field Work)

Semester – III

1. Data Communication and Computer Networks, Information Security, Network Economy
2. Farm Health Management, Expert Systems and Organic Agriculture
3. e-Governance, Cloud Computing, Standards, Interoperability and Digital preservation
4. Agricultural Credit and Financial Inclusion (Micro-financing, Money lenders, Farmers Distress, Self Help Groups etc)
5. Elective Paper – 1*

6. Elective Paper – 2*
7. Elective Paper – 3*
8. Entrepreneur Development Programme in Agricultural Service Delivery [Agricultural Projects formulation, economic viability, appraisal and cost-benefit ratio]

Elective Paper – 1 *

1. Decision Support System (DSS)
2. Knowledge Management
3. Value Added Services and Digital Networks including Wireless and Sensor Networks

Elective Paper – 2 *

4. Geo-Informatics: GIS and Remote Sensing Technology Applications; Agriculture Drone Technology Applications.
5. Agricultural Bioinformatics
6. Climate Change and its impact on agricultural production

Elective Paper – 3*

1. Strategic Research and Extension Plan (SREP) for Agricultural development (including schemes related to Agricultural Production, Land and Watershed projects, crop insurance, Rainfed farming projects etc.)
2. Agricultural Resources Information System and Micro Level planning
3. Rural Computing and Social Auditing

Semester – IV

1. Field Work and Dissertation
2. Seminar & Viva Voce

Eligibility Criteria

- Students having Graduate Degree in Agriculture and Allied Sciences from recognized University / Institute from India and Abroad;
- Students having Post-Graduate (M.Sc) degree in Mathematics, Physics, Chemistry, Biology, Statistics, Rural Development, Geography, Economics, Information Technology, Bio-Informatics, Bio-Technology, Agro-Forestry, Forestry and Home Science.



MBA in Agribusiness Management

(Duration: 2 Years – 4 Semesters – a batch of 40 Students)

Value-Chain developments, from production to consumption, are transforming the Indian agricultural sector and have created unprecedented demand for qualified Agribusiness Management Professionals to competently manage the agricultural Input-output operations and drive the agricultural growth for its increased contribution to India's GDP.

There are newer areas emerging in management, like food retailing, supply chain, rural malls, Agribusiness Centres, business research, commodity trading, logistics, knowledge management, besides traditional areas of management, namely Agri-inputs and rural marketing.

Agribusiness denotes activities of Agricultural Sector integrated in terms of Production, Post-Harvest Management, Storage, Processing, Distribution, Marketing, Trading etc., under different Organizational Networks. Agri Business Management (ABM) Programme, inter alia, caters to the emerging needs in the Agriculture and Food Sector, by producing following categories of skilled manpower:-

- Management professionals for the Agri-Food Firms, Enterprises and Cooperatives;
- Policy Makers for Government, Financial and associated Agencies;
- Teaching Faculties and Research Professionals;
- Agri-Business Consultants and Self-Employed Professionals;
- Specialists who have understanding production technology as well as business management aspects of Agricultural sector.

AgriBusiness Management courses are designed with a vision of empowering Agricultural graduates with knowledge of systematic observation and analytical skills needed to take effective charge of the new socio-economic, agro-ecological conditions and to rise above the functional barriers in the execution of their responsibilities, in this challenging era.

The Course Curriculum is designed with extensive agricultural industry consultation and academic experts' advice. It integrates technical, functional, managerial and leadership aspects of management with a fusion of skills, techniques, qualities and values. The course is customized to the requirement of the industry.

The School of Business Studies (SBS) of the University offers Master in Business Administration (MBA) and is a Centre of Excellence for value-based management education. In collaboration with the SBS, the Centre of Agricultural Informatics and e- Governance Research Studies, offers the Course – MBA in Agribusiness Management.

Semester – I

1. Information Technology & its Applications
2. Management Principles & Techniques
3. Accounting & Financial Analysis
4. Organizational Behaviour & Ethics
5. Agri Business Environment and Management
6. Quantitative Techniques
7. Marketing Management
8. Managerial Communication Methods
9. Segment Training (2 weeks)
10. Foundation Course (Bridge Course)

Semester – II

1. Financial Management
2. Agribusiness & Rural Marketing
3. Managerial Economics
4. Research Methods in AgriBusiness Management
5. Agriculture Production Systems Management
6. Managing Collectives (for Value Chain & Supply Chain) in Agriculture Sector
7. Operation & Agri Supply Chain Management
8. Human Resource Management
9. Agri Trade Policies and Procedures
10. Segment Training (2 Weeks)
11. Seminar in AgriBusiness Management

Semester - III

1. Business Law and Ethics
2. Innovation & Entrepreneurship
3. Project Management
4. Data Analytics and Modelling
5. ITeS in Agriculture Sector and Enterprises
6. Elective Paper (Any two Subjects)
 1. Agricultural Marketing Management



MBA in Agribusiness Management

(Duration: 2 Years – 4 Semesters – a batch of 40 Students)

2. Micro-Credit And Foreign Trade Finance
 3. International Business
 7. Elective Group – Industry (Any One Group)
 - A. Agri Input Management
 1. Inputs Marketing Management
 2. Seed Production Technology
 - B. Agri-Technology Management
 1. Farm Power & Machinery Management
 2. Management of Irrigation Systems
 - C. Food Process Management
 1. Food Retail Management
 2. Vegetable Production and Post- Harvest Management
 - D. Livestock, Poultry, Fisheries & Dairy Management
 1. Meat and Meat Product Management
 2. Dairy and Dairy Product Management
 - E. Agro Forestry and Plantation Management
 1. Agro-forestry, Renewable Biomass based energy and Environmental Management
 2. Plantation Management – Agri Commodity, Production, Testing and Marketing
 - F. Fertilizer Marketing Management
 1. Production, Imports, and Consumption; and Supply Chain Management
 2. Pricing (including subsidy), Promotion, Products, and Packaging
 8. Practical Training (8 weeks)
 9. Seminar in AgriBusiness Management
- Semester – IV
1. Strategic Management
 2. Entrepreneur Development programme (projects formulation, economic viability, appraisal and cost-benefit ratio)
 3. Database Management and Decision Support Systems (DSSs)
 4. Elective Paper (Any two Subjects)
 1. Banking & Insurance Management
 2. International Agricultural Trade
 3. Farm Business Management
 5. Elective Group – Industry (Any One Group)
 - A. Agri Input Management
 1. Agricultural Credit & Risk Management
 2. Agro Chemical Technology & Management
 - B. Agri Technology Management
 1. Renewable Energy Resource Management
 2. Agricultural Bio-Technology & Business Management
 3. Precision Farming and IT Enabled Value Chains in Agriculture
 - C. Food Process Management
 1. Food Technology & Processing Management
 2. Fruit Production & Post Harvest Management
 - D. Livestock, Poultry, Fisheries & Dairy Management
 1. Poultry Products Technology and Processing Management
 2. Fish Products Technology & Processing Management
 - E. Agro Forestry and Plantation Management
 1. Agro-Forestry produce Value-Chain Development
 2. Agri-Plantation Business Management
 - F. Fertilizer Marketing Management
 1. Market Regulations, and Movement, Distribution and Quality Controls
 2. Procurement in international market and shipping arrangements
 6. Seminar in Agribusiness Management
 7. Field Work & Dissertation
 8. Viva-Voce
- Eligibility Criteria
- Students having Graduate Degree – B.Sc in Agriculture or Allied Science; B.Tech/B.E in or Biotechnology, Food Technology, Agro-Forestry, Micro Biology etc.;
 - Students having Post-Graduate degree in Mathematics, Physics, Statistics, Rural Development, Geography, Economics, Information Technology, Bio-Informatics, Bio-Technology and Forestry etc.; from recognized University / Institute from India and Abroad.

CENTRE FOR AGRICULTURAL INFORMATICS & E-GOVERNANCE RESEARCH STUDIES



B.Tech in Agricultural Informatics

(Duration: 4 Years – 8 Semesters – a batch of 60 Students)

Based on the Brainstorming Sessions held in December 2010 & 2011, the Shobhit University has launched B.Tech in Agricultural Informatics Programme under the Department of Agri-Informatics Engineering, in 2012 in a modest way with the Course details as follows:-

Semester – I (credit-23)

1. Remedial Mathematics –I
2. Industrial Chemistry and Environmental Studies
3. Basics of Mechanical Engineering
4. Fundamental of Electronics
5. Presentation, Communication and Soft Skills
6. Basic Electronics Lab.
7. Communication Lab.

Semester – II (credit-24)

1. Remedial Mathematics –II
2. Electronics Physics
3. Computer Fundamental and Programme using C
4. Basic Electrical Engineering
5. Technical Communication
6. Manufacturing Process
7. Electronics Physics Labs
8. CAD Engineering Graphics Labs
9. Computer Programming using C Lab

Semester – III (Credit-25)

1. Agricultural Engineering
2. Fundamentals of Soil science
3. Information Technology for Agriculture
4. Environment Management System
5. e-Commerce for Agriculture
6. Management Concept and Practices
7. Soil science lab

Semester – IV (Credit-24)

1. Crop and Soil Management
2. Natural Resource Management for Agriculture
3. Statistics Techniques For Agriculture
4. Business Communication
5. University Elective-I
6. University Elective-II*

University Elective-I*

1. Analytical Techniques
2. Chemo informatics
3. Biomechanics
4. Digital Electronics

5. Measurement Science and Techniques
6. Data Structure using C

University Elective-II*

1. Introduction to Bioinformatics
2. PERL Programming
3. Database Management System
4. Bioinstrumentation
5. Electronic Devices and Circuit
6. Control System Engineering

Semester – V (credit-25)

1. Soil water plant weather relationship
2. Principles of watershed management
3. Remote sensing and GIS
4. Object oriented programming
5. I.T. Tools for Agriculture
6. Nano Technology for Agriculture
7. Object oriented programming lab

Semester – VI (credit -30)

8. Data collection processing and instrumentation
1. Fundamentals of Bioinformatics
2. Supply Chain management
3. Internet applications
4. Data mining and data ware housing technology
5. Bioinformatics Lab
6. Internet application lab
7. Minor project/ training based
8. Seminar

Semester – VII (credit-25)

9. Method for Technology Development and Transfer
10. Precision Agriculture
11. Fundamental of extension education*
12. Agro-meteorology and crop weather forecasting
13. Multimedia and management of Agri web portals
14. Cloud Computing
15. Agri web ports and Multimedia Lab

Semester – VIII (credit-15)

1. Dissertation and presentation

ELIGIBILITY CRITERIA:-

Students having 10+2 (any board) from recognized Board from India and Abroad

Competency Building Programme – e-Governance in Farming Sector

(Duration – 2 week / 4-week – a batch of 25-30 Participants)

Globally, Agricultural Informatics, as an area, has been focusing on creating new breed of human resources to take up the renewed challenges in conceptualizing, developing, deploying and managing “farmer-centric” intelligent supply chains, proactive environmental impact oriented interventions, while ensuring sustainable agricultural systems.

The Competency Development Programme is based on thematic approach: (a) ICT4D / ICT4Agriculture (ICT4Ag) and (b) e-Governance and Development, and categorized into the following main areas:-

- Introduction to ICT4D/ICT4Agriculture and e-Governance
- Digital India and ICT in Africa and other Countries; Learning from each other.
- Trends in ICT Infrastructure and its contribution to ICT4D and e-Governance
- ICT4D Cases and best practices
- ICT4Agri Cases and best practices
- ICT4D – managing supply and value chains
- Convergence: ICT4D/ACT4Agri and e-Governance
- Sectoral Policy and best practices for convergence
- Managing Networks
- Service orientation for development and governance with ICT as backbone
- Decision support systems
- Managing Sectoral enterprises and use of sustainable tools and technologies
- Managing Big Data and Analytics
- Managing variants of ICT4D; ICT4Agri application and services
- Scale up strategies for Networks, Services, applications, enterprises with ICT4D and E-governance approaches
- Group Work

Various Case Studies on Projects and Programmes will be drawn from Government of India, State Governments, NGOs and Private Sectors, Educational and Research Institutions, and also based on Information needs and Services – Life Cycle Approach:

- Crop Sector Life Cycle (CLC) - Agriculture, Horticulture, Floriculture
- Livestock Sector Life Cycle

- Fishery Sector Life Cycle
- Farmer Life Cycle
- Farm Sector Life Cycle
- Agri Inputs Sector Life Cycle
- Agro Outputs Sector Life Cycle

This approach will facilitate (a) making eAgriculture technology robust and accessible, (b) implementing integrated eAgriculture plans, (c) developing country-specific sustainable agriculture strategy maps, and (d) establishing an agricultural hub to drive agricultural diversification, mega projects including eAgriculture projects, and initiate and coordinate opportunities in the agricultural sector.

The Centre for Agricultural Informatics and e-Governance Research Studies of the SHOBHIT University, has released its focused “Competency Development Programme in e-Governance in Agricultural Sector” as follows:-

- Two Week Programme for Senior level Government Officers from the Ministry of Agriculture and Farmers' Welfare and Agricultural Stakeholders;
- Four-Week Programme for Middle level Government Officers of Ministry of Agriculture and Farmers' Welfare and Agricultural Stakeholders;

The e-Governance Projects in Farming Sector, inter alia, include the following services:-

1. ICT Enabled Extension Services (Inputs, on-Farm, Off-Farm and Non-farm activities)
2. ICT enabled Supply-Chain and Value-Chain Project
3. Agricultural Marketing Information System Project
4. Farm Health Management Information System Project
 - a. Plant Health
 - b. Animal Health including Fish Health
 - c. Soil Health
 - d. Water Health
5. Agricultural Resources Information System
6. Micro-level Planning
7. AgriBusiness Management
8. Agricultural Risk Management



Competency Building Programme – e-Governance in Farming Sector

(Duration – 2 week / 4-week – a batch of 25-30 Participants)

To facilitate this, the Training Capsules have been designed to cover Database System, Textual Base System, Workflow System, Advisory system, GIS based Decision Support System (DSS), Mobile based Applications, Information Access through recognized vernacular languages, Public Grievance and Redress Management, and Information Dissemination Methods [through SMS, IVRS, Call Centre, Web Portal, Community Radio, TV, etc].

During the Course programme, efforts will be made to demonstrate applications, in the following areas, to the extent possible:-

- agricultural news (on new cultivation products and machinery, for example);
- agricultural policy (laws and regulations),
- funding opportunities (to buy equipment, for example),
- weather forecasts, alerts (for example, disease outbreak and extreme weather conditions),
- market forecasts (product prices, supply and demand),
- expert consulting (cultivation techniques, marketing of products and new production standards),
- notifications (for deadlines, renewal of certificates, submission of documents, new cultivation products or techniques, verification of important dates, farmer union issues, events), petitions (for example license renewal),
- tele-diagnosis (plant and animal diseases),
- financial transactions, employment market, search engine (for databases, locating agencies in the surrounding area),
- messages to public agencies (agricultural accident reports, incidents, queries, complaints, comments, interventions, opinion stating),
- input dealers (seed, fertilizers, pesticides),
- national agricultural research system,
- agricultural crop insurance information,
- public grievances redress,
- drought monitoring and
- Agricultural Sector Development Schemes / Projects of both State (Provincial) and Central (Federal) Governments.

Linkages with Global Forum for Farmers (GFF), Indian Council of Food and Agriculture (ICFA) and Indian Association for IT in Agriculture (IAITA)

The Global Forum for Farmers (GFF) (<http://globalforumforfarmers.com>) is the foremost non-governmental global agricultural platform that initiates dialogue between those who can impact agriculture. GFF is the voice of the world's farmers, representing SAARC countries, African countries and Latin American countries and National Organizations.

The Indian Council of Food and Agriculture (ICFA) is an apex body to act as think tank, policy advocacy, trade facilitation, development catalyst and monitoring centre for India's food and agriculture sector (<http://www.icfa.org.in>). ICFA has established a Working Group on ICT in Agriculture. The Chairman of the Centre for Agricultural Informatics and e-Governance Research Studies (CAIRS) is the Chairman of ICFA Working Group on ICT.

In collaboration with GFF & ICFA, the CAIRS desires to undertake

Competency Development Programme on e-Governance in Farming Sector (2-week and 4-week) for the Agricultural Stakeholders of the Developing countries. And also, in association with the GFF, ICFA and IAITA, the Centre will organise National and International Conferences on IT for Agriculture (IT4Ag) for the benefit of Developing Countries.

This Centre will also progressively establish linkages with International Federation for Information Technology in Agriculture (IFITA), Pan-American Federation of Information Technology in Agriculture (Pan-AFITA), European Federation of Information Technology in Agriculture (EFITA), Asian Federation of Information Technology in Agriculture (AFITA), Technical Centre for Agricultural and Rural Co-operation (CTA) The Netherlands etc., which are promoting "Open Systems" through ICT in Agriculture throughout the World.

Linkages with Global Forum for Farmers (GFF), Indian Council of Food and Agriculture (ICFA) and Indian Association for IT in Agriculture (IAITA)

To strengthen Agricultural informatics, this Centre will associate with the Global initiatives that have taken place, as follows:-

- AIMS(<http://www.aims.fao.org>) - Agricultural Information Management Standards, is a space for accessing and discussing agricultural information management standards, tools and methodologies connecting information workers worldwide to build a global community of practice; is primarily intended for Information Workers (i.e. Librarians);
- agINFRA – a Data Infrastructure for Agriculture
- GODAN (www.godan.info) - Global Open Data for Agriculture and Nutrition.
- CIARD (www.ciard.net) - the Coherence in Information for Agricultural Research for Development - "to develop common standards, share knowledge and contribute to coherent, effective and open institutional approaches to agricultural knowledge";
- RING (www.ring.ciard.net) - Route map to Information Nodes and Gateways - acts as a global directory of web-based information services and datasets for agricultural research for development;
- GFSP (www.gfsp.org) - Global Food Safety Partnership,
- RDA (www.rd-alliance.org) - Research Data Alliance internal groups :
- Agriculture Data Interoperability Interest Group and the Wheat Data Interoperability Working Group.;
- e-Agriculture of FAO - is a global Community of Practice (COP), where people from all over the world exchange information, ideas, and resources related to the use of information and communication technologies (ICT) for sustainable agriculture and rural development;
- CGIAR(www.cgiar.org) - set up to transfer knowledge to the poor countries as well as help them be part of knowledge production;

The Gaps are expanding and Needs to improve Open Knowledge Access are to be addressed through Capacity Building. The Scope for further Collaboration – National and Global Agencies – is enormous but needs to be undertaken on priority basis.

The “Content to Connectivity”, under the Digital India Programme, needs to be strengthened for Inclusive Growth and Development of Indian Agriculture. “Knowledge for Innovation (K4I)” has to become a national agenda. This centre will earnestly pursue it.

Informatics Outreach Programme

The Centre for Agricultural Informatics and e-Governance Research Studies has institutional arrangements with the Indian Grassroots level Organisations (NGOs) viz., Livelihoods Development Research Foundation (LDRF) Delhi, Indian Society of AgriBusiness Professionals (ISAP), AHIMSA (Chennai), VIDYAL (Theni), International Agricultural Consulting Group (IACG), AGRI (Delhi), CSCForum.org, Broadband Forum India, CMAI Association of India, etc., for working with Informatics and e-Governance Development Outreach Programmes/Projects in the areas of Agriculture, Food and Nutritional Security, Horticulture, Livestock & Dairy Development, Fisheries, Marketing, Rural Development, Farm Health, Farm Education, Farm Extension, Agricultural and Food Processing Industries, Value-Chain, Farmers' Welfare etc.

The Centre has also signed MOU with NRIs viz., www.shuvgray.com, www.harvesting.co, www.i-cultiver.com, etc., for technology development and extension projects in India, to strengthen agricultural informatics & e-Governance programmes.



CENTRE FOR AGRICULTURAL INFORMATICS & E-GOVERNANCE RESEARCH STUDIES



CAIRS

Institutional Linkages for Global & Best Practices

Progressively, the Centre will have institutional linkages with Central / State Agricultural & Rural Development Departments, ICAR Institutions, CGIAR Institutions, Central / State Agricultural Universities, Agricultural Colleges, ATMA Centres, Agricultural Marketing Boards, Krishi Vigyan Kendras (Farm Science Centres), Banking, Insurance and Financial Institutions, NABARD, MANAGE, CSIR, NIRD, DST, DBT, DeitY, NIC, Media Lab Asia, ISRO/SAC, IMD, UN Organisations, UN Institutions, DFID, IDRC, USAID, ERIA, ADB, AAARDO, M.S.Swaminathan Research Foundation, Agricultural Universities in ACP Countries, Australia, Asian, American, European Countries etc.

International Cooperation for Academic and Education Research

In view of its strategic importance, the SHOBHIT University desires to establish its Institutional Linkage with BRICS through ASSOCHAM to facilitate "Agricultural Informatics Development Programme" in BRICS Nations, through "M.TECH in Agricultural Informatics and MBA in Agribusiness Management Courses for Agricultural and Allied Sciences Graduate Students" and "Competency Development Programmes for Officials of Ministry Agricultural Resources" of BRICS Nations. This measure will go a long way in harnessing "demographic dividend" through Agricultural Informatics and e-Governance Research.

In the Agricultural Informatics & e-Governance Research area, the Centre for Agricultural Informatics and e-Governance Research Studies can serve as a Hub for BRICS, IBSA (India, Brazil & South Africa) and IOR (Indian Ocean Ridge) Nations, in regard to Cooperation in Appropriate Technology and Human resources for Bridging Development-Gaps", through ASSOCHAM. This will go a long way for the proposed Cooperation in Agriculture through Agriculture Information Base. The University has already addressed to ASSOCHAM in this regard.

This Centre is in the process of establishing appropriate institutional linkages with Agricultural Universities abroad, especially with respect to African, Asian, South American and Latin American Countries, to evolve "Competency Development in Agricultural Informatics: A Strategic Roadmap for Developing Countries" and also to promote research, education, development, extension and training in Agricultural Informatics & e-Governance programmes.

These bear from the fact that strategic Intervention (infusion and diffusion) of ICTs in agricultural inputs, production and output systems, integrate and facilitate trade, technology and food security, through effective value-chain and supply-chain models, is a priority assignment in Developing Countries (DCs).

In view of its strategic importance, the SHOBHIT University has shown its desire by writing to ERIA (Economic Research Institute for ASEAN and East Asia), Jakarta (Indonesia) to establish its Institutional Linkage with ERIA to facilitate "Agricultural Informatics Development Programme" in East Asia and ASEAN Countries, through "M.TECH in Agricultural Informatics and MBA in Agribusiness Management Courses for Agricultural and Allied Sciences Graduate Students" and "Competency Development Programmes for Officials of Ministry Agricultural Resources" of East Asian and ASEAN Countries, in September 2014.





Skill Development Programme

The Centre for Agricultural Informatics and e-Governance Research Studies has institutional arrangements with National Skill Development Council (NSDC) and its associated Sector Skill Councils such as: Telecom Sector Skill Council (www.tsscindia.com), Electronic Sector Skill Development Council (www.essci.com) and Agriculture Skill Development Council (www.asci-india.com) etc., for skill development programmes.

In collaboration with the International Skill Development Centre (ISDC) of the Shobhit University, National and International premier Institutions associated with Computational Informatics & e-Governance Programmes, this Centre proposes to conduct Skill Development programmes for IT Professionals who are engaged in e-Governance programmes of the States as well as the Central Governments, in 12 Strategic Areas / Disciplines which are split into Technical Programmes and Management Development Programmes, as given below:-

Strategic Areas / Disciplines

1. Advanced Topics in Systems Software, hardware and Communications Technology
2. Referral Architecture
3. Shared Services
4. Standards and Interoperability
5. Networking and Data Centres
6. Digital Security (Cyber Security)
7. Government Process Re-Engineering
8. Project Management (Software Projects) & Adjudication
9. RFP (Request For Proposals) Management
10. Technology Development Programme
11. IPR (Intellectual Property Right) Management
12. Change Management (Human Resources and QMS)

Technical Programmes

1. Governance Engineering & Architectural Change Management
2. Internet Governance & Management Programme
3. e-Governance Services Delivery & Digital Inclusion
4. ICT Plan Formulation & Policy Initiatives
5. ICT Service Management Programme & its Value Chain
6. ICT Projects – Rapid National Roll Out and Operations, Maintenance and Enhancement
7. International Exposure on e-Governance - International Cooperation Programme
8. Cloud Computing Technology & Applications

9. e-Governance Solutions & e-Governance Standards
10. Software Design Engineering & Emerging Technologies
11. Spatial Information Technologies (RS, GIS, Image Processing)
12. Database Technology and Database Management including “Cloud database” in real-time applications
13. Data Analytics Methods & Programming – Decision Support System (DSS)
14. Networking Technologies & Management
15. Data Centre Management & Operation – Technologies Update
16. Certification Authority (CA) – Operations and Management & Technology Update
17. Mobile Computing Applications and Integration with NSDG, SSDG and MSDG and e-Payment Gateway etc
18. Portal Development and W3C Standards
19. Building Secured “Rich Internet Applications” and Software Testing
20. Technical Writing of Project Documents and IEEE Standards
21. Quality aspects & Ethics in Working, Communication Skills and Stress Management
22. Public Administration & e-Governance Project Delivery
23. Software Development Platform Technologies (Open Technology Stack, Microsoft Technologies Stack, Oracle Stack, IBM Stack etc)
24. Software Development Life Cycle (SDLC) & ICT Project Management
25. Software Engineering Methods & Best Practices for Applications Development – Cost Estimation & Requirements Engineering
26. e-Governance Projects – Government Process Re-Engineering, Change Management & ICT Infrastructure sizing
27. Web Technologies and Cyber Security (Network Security, Information Security)
28. Applications Security Testing - Security Intelligence and Risk Management for “Secure Code” Development;
29. Software Engineering Development and Management Processes and Practices
30. Functional and Performance Software Testing
31. Business Continuity and Disaster Recovery (BC&DR) Planning
32. Apps User Interface Design Methods & Techniques
33. Open Data and Social Media Networking

CENTRE FOR AGRICULTURAL INFORMATICS & E-GOVERNANCE RESEARCH STUDIES



Skill Development Programme

34. End-User Computing capability through Indian Language interface and Automatic Speech Recognition (ASR) techniques
 35. Mobile Technologies and Touch Screen Applications
 36. Localisation (Language Technologies)
 37. Middleware Technologies and Applications
 38. Next Generation e-Governance and Innovations in e-Governance
 39. International Cooperation and Collaboration in e-Governance Programme
 40. Best Service Delivery System Models & Service Delivery Acts (Central and States)
 41. Internet Payment Gateway
 42. e-Commerce & Financial Inclusion
 43. JAM Number Trinity Applications
- Management Programmes
1. Management Development Programme
 2. Leadership Development Programme

3. ICT Cyber Laws & Legal Procedures
4. Administrative, Financial, Purchase & Establishment Procedure
5. HR Management
6. Quality Management System
7. IPR Management

Expected Outcome

- Promotion & Application of Appropriate Technologies and sound architectural framework to operationalise e-Governance projects in reduced project cost-over-run and time-over-run.

(Source: Skill Development Programme for NIC S&T Professionals (Senior and Middle level), April 2013, National Informatics Centre, Department of Electronics and Information Technology, Government of India, New Delhi).

These programmes will be residential in nature and each batch will necessarily be about 25-30 participants. However, these programmes will be conducted in major cities to begin with and later will be expanded to all 650+ District Headquarters. Charges for these programmes will be inclusive of Boarding and Lodging.

Advisory Committee for Agricultural Informatics Programmes

To review teaching and research programme and suggest improvement thereof, so as to produce competent Agricultural Informatics professionals, capable of making positive contribution to rejuvenation of farming sector in India and Abroad, the Shobhit University has constituted an Advisory Committee for Agricultural Informatics Programmes, with the following Eminent and Distinguished Professionals of India, vide University Notification No. SU/RO/ACS/04/2014 Dated: August 29, 2014 :-

1. Prof. R. B. Singh Chairman
Immediate Past President, National Academy of Agricultural Sciences (NAAS), New Delhi & Chancellor, Central Agricultural University, Manipur.
2. Shri J N L Srivastava (IAS Retd)
Former Secretary (Agriculture and Cooperation), Government of India & Managing Trustee, IFFCO Foundation, Gurgaon.
3. Prof. R. P. Singh
Executive Secretary, Indian Agricultural Universities Association National Agricultural Science Complex, Pusa Complex, New Delhi.
4. Prof. H. K. Mishra
Institute of Rural Development Anand (IRMA), Anand, Gujarat.
5. Prof. P. N. Bhat
Chairman, World Buffalo Trust & Former Director & Vice-Chancellor (IVRI & NDRI), Indian Council of Agricultural Research (ICAR), Government of India, New Delhi.
6. Prof. Gajendra Singh
Founder Vice-Chancellor, Doon University, Dehradun, Uttarakhand; Former Vice President & Dean, Asian Institute of Technology (AIT), Bangkok, Thailand; & Former Deputy Director General (Agri. Engineering), Indian Council of Agricultural Research (ICAR), Government of India, New Delhi.
7. Prof. N. K. Goyal
Adviser, Gujarat Technological University, President, CMAI Association of India, & Vice Chairman, ITU APT (India), New Delhi.
8. Shri Girish G. Sohani
President & Managing Trustee, BAIF Development Research Foundation, Pune, Maharashtra.

CENTRE FOR AGRICULTURAL INFORMATICS & E-GOVERNANCE RESEARCH STUDIES



Advisory Committee for Agricultural Informatics Programmes

9. Prof. S.D. Samantaray
Head, Computer Engineering, Department of Computer Engineering,
College of Technology, G. B. Pant University of Agriculture and
Technology, Pantnagar, Uttarakhand.
10. Prof. A. K. Sharma
Former Dean, Faculty (E&T), YMCA University of Science &
Technology, Faridabad, Haryana.
11. Prof. Sanjeev Singh
Institute of Informatics and Communication
South campus, University of Delhi, Benito Juarez Road, New Delhi.
12. Smt. Neeta Verma
Deputy Director General, National Informatics Centre, Department of
Electronics and Information Technology, Ministry of Communications
and Information Technology, Government of India, New Delhi.
13. Shri Kishan Kumar Goenka,
Country Head, PT. Akrya International Jakarta (Indonesia), Gurgoan
Director, Clean Energy India AG , Switzerland, CEO, SBM Swiss
Business Makers GmbH, Switzerland & Former President, Birla
International Ltd., Switzerland
14. Shri Rajiv Aggarwal
Chief Executive Officer, Bharat Technical Solutions (P) Ltd., VIOM
Tower, 3rd Floor, Plot No. 14 A, Sector -18, Maruti Industrial Complex,
Gurgaon.
15. Prof. M. Moni
Professor Emeritus & Chairman, Centre for Agricultural Informatics
and e-Governance Research Studies, SHOBHIT University, Meerut.

Future Academic Programme

- M.Tech in Information Security
- M.Tech in Data Analytics and Cloud Computing
- M.Tech in Veterinary Informatics
- M.Tech in Fishery Informatics
- M.Tech in Health Informatics
- M.Tech in Geo-Informatics
- M.Tech in e-Governance & Informatics
- M.Tech in Rural Development Informatics
- M.Tech in Legal Technology & Informatics
- M.Tech in Informatics & Standards
- MBA in Digital Marketing & e-Entrepreneurship Development
- Post Graduate Diploma in e-Governance & Community Risk
Management
- Post Graduate Diploma in Digital Library Management
- Post Graduate Diploma in Agriculture Journalism.

Digital India AND Other Key Initiatives

- Broadband in 2.5 lakh villages by 2019**
- Wi-fi in 2.5 lakh schools, all universities**
- Wi-fi hotspots in public spaces in cities, tourist centres**
- 4 lakh public internet access points**
- Train people in smaller towns and villages for jobs in IT sector**
- Spend on current schemes ₹1 lakh crore**
- Spend on new schemes ₹13,000 crore**

NATIONAL OPTICAL FIBRE NETWORK: Conceptualized in 2011, the programme plans to connect all 2.5 lakh gram panchayats in the country at a cost of ₹20,000 crore. The government set up the Bharat Broadband Network to execute the programme

NATIONAL DIGITAL LITERACY MISSION: Set up in 2012 by IT industry body Nasscom and companies like Intel and Microsoft, NDLM will complement the government's efforts and intends to make 10 lakh people digitally literate by the end of 2015

Source: Times of India



Project Development Programme

The Centre for Agricultural Informatics and e-Governance Research Studies, as a part of deepening and intensification of digitalization of grassroots level problems areas for possible innovative but implementable and much-needed solutions, encourages Projects development and submission for financial assistance from both national and international funding.

As of now, the following Project Proposals have been submitted for project assistance:-

1. Project Proposal on "DIGITAL VILLAGE - SMART Village: Digitally connected & Enabled for long-term, sustainable development of Village" October 2014, Circulated to be undertaken under the "SAANSAD Adarsh Gram Yojana 2014";
2. Project Proposal On "Capacity Building and e-Governance in Agriculture: Harnessing Information Communication Technologies (ICTs) for Agricultural Development and Rural Transformation in Ethiopia", July 2014, Submitted to the Embassy of the Federal Democratic Republic of Ethiopia, New Delhi ;
3. Project Proposal On "Capacity Building and e-Governance in Agriculture In Republic of Senegal" July 2014, submitted to the Embassy of Republic of Senegal, New Delhi;
4. Project proposal on "Capacity Building and e-Governance in Agriculture" March 2014, Centre for Agricultural Informatics & e-Governance Research Studies, Shobhit University and International Agriculture Consulting Group, New Delhi - Submitted for Project Sanction under the Government of India Programme: "India & Africa Partners in Development – Capacity Building Programme for Africa"- Submitted to the Ministry of External Affairs, Government of India – A Joint Collaborative Project;
5. Project on "e-Governance in Farming Sector : Capacity Building and e-Governance (ICT enabled Agricultural Management System)", submitted to the Agricultural Production Commissioner, Government of Uttar Pradesh, February 2014 – A collaborative project of International Agricultural Consulting Group (IACG) New Delhi and Centre for Agricultural Informatics & e-Governance Research Studies, Shobhit University, NCR Delhi.
6. A Project Note on "Railways Boarding Pass System for Passengers" - as practiced for Air Travel – Strengthening of Passenger Safety & Security System during Train Travel – Modernisation of Railway Systems, with the "potential of generating a lot of employment, facilitate luggage management and professional packaging, reduce revenue leakages, facilitate accident relief management, and more comfort for the Passengers", 2nd July 2014, submitted to the Hon'ble Minister of Railways, Government of India, New Delhi, with a request to sanction for undertaking a Detailed Project Report (DPR) on the proposal, vide letter No: SHOBHIT University/MM/CAIGRS/2014-6 Dated 3rd July 2014;
7. Kanakaraj. R, Suresh Subramonian and Moni.M (2015): "Muthalakurichi - Modernizing to be a Socio-Economically Advanced Geographical Indicator Preserved Model Village" (Under SAANSAD ADARSH GRAM YOJANA), Kanyakumari Parliamentary Constituency, January 2015, submitted to the Hon'ble Member of Parliament, Kanyakumari Parliamentary Constituency – An NGO and University Collaborative Project;
8. Kamaraj. K, Sandeep Chatterjee and Moni.M (2015): "Empowering the small and marginal farmers' knowledge and livelihoods through Competency Building and e-Governance Solution for Farm Health Management to reduce farm losses of the Farming Community in Theni District, Tamilnadu", proposal submitted to US India S&T Endowment Fund for project funding, 15 July 2015 – A collaborative project with NGO, NRI and the University;
9. Ruchit Garg, Moh'd Zafar and Moni.M (2015): "Precision Agriculture: Use of Agricultural Resources Information System (AgRIS) and Application of Drones (UAVs) – in Gangoh Block, Saharanpur District, Uttar Pradesh, India", Proposal submitted to US India S&T Endowment Fund for project funding, 15 July 2015 - A collaborative project with NGO, NRI and the University.
10. Project on "Competency Development and e-Governance Solution for Farm Health Management to reduce farm losses of the Farming Community" [Short Title: Digital India - Farm Health Information Technology System], submitted to IT Research Academy, Media Lab Asia, DeitY under EOI Projects: IT Based Transformation in Indian Agriculture and Food, February 2014.



Research Papers, Technical Reports and Keynote Addresses of Faculty Members

1. Moni. M (2016): "Small and Marginal Farming Sector Productivity Increase: Role of Agricultural Geography and Digitalization of Farming Sector – Digital India Programme", Address and Chairman of the Panel Discussion on "Agricultural Chapter of Volume 2: Land, Water and Agriculture" of the ICSSR Sixth Round of "Research Survey and Exploration in Economic Geography during 2003-09" in the ICSSR National Seminar, held on 22-23 March 2016 at JNU Convention Centre, Jawaharlal Nehru University Campus, Delhi;
2. Moni.M (2016): "Future technologies and ICT applications to enhance Food Security – Role of Agricultural Informatics, Bio-Informatics and Health Informatics", Invited Address in the One Day Workshop on Bio-Informatics panorama in Agriculture and Health, organised by faculty of Biological Engineering, Shobhit University, Meerut, on 4th March 2016.
3. Moni.M (2016): "Geo-Spatial Information Technology Applications in Agriculture (Geo-Agri)", Address and Chairman of the Technical Session-II & III : Agriculture, Geo Smart India 2016, 1-3 March 2016, India Expo Centre, Greater NOIDA, Uttar Pradesh;
4. Moni.M (2016): "ICT and ICT enabled Development in North Eastern Region – Natural Resource Management, Agricultural Development and Inclusive e-Governance Services", Vibrant North East Development Meet 2016, 18 February 2016, Hotel Lily, Guwahati, Assam;
5. Moni.M (2016): "Content to Connectivity: The Prospective Digital Platform in Indigenous Knowledge Management", Invited Address at the Two-day Workshop on "Traditional Knowledge and Tribal Handicrafts", organised by Amity School of Natural Resources & Sustainable Development, Amity University Campus (Noida), NCR Delhi, and sponsored by the Department of Handicrafts, Ministry of Textiles, Government of India, New Delhi, on 10th February 2016;
6. Moni. M (2016): "Formulation of New Education Policy 2015: Development of SMART Students through Knowledge, Skill and Attitude (KSA) –> Ability Model and Technology Adoption", Theme Paper of the All India EduLeaders (AIEL) 3rd Regional Conference held on the Theme : "Knowledge vs. Skill" to prepare Vision Document for submission to NCERT for formulating New Education Policy (NEP) of the Government of India, organized by Dakshin Sahodaya Schools Complex (An Official Association of CBSE Affiliated Schools), Nagercoil, Tamil Nadu (India), 9th January 2016;
7. M.Moni (2015): "Digital India: Engineering e-Governance Research and Innovations: Role of 4500 Engineering Colleges of India", Invited address delivered at the National Conference on "Make In India & Educate in India: Role of Higher Educational Institutions In Making India As An Education Hub", organised by Federation of Industry, Trade and Services (FITS), Delhi on 12th October 2015;
8. Moni.M (2015): "SMART VILLAGE – Digitally Connected and Digitally Enabled for long-term, Sustainable Development of Village: Moving Towards Faster and More Inclusive Growth", presented at Indian institute of Technology (IIT), Delhi during the Brainstorming Workshop of EU-INDIAFI-MEDIA/UBA C2C on "SMART Village", 18 December 2015;
9. Moni.M (2015): "SMART Agriculture - Digitalization of Farming System in the State of Uttar Pradesh", Invited Address during the Inaugural Session of the Uttar Pradesh Development Meet – Agro Tech 2015, organized by Centre for Agriculture and Rural Development (CARD) New Delhi, held on 15th December 2015 at IISR Auditorium, Lucknow.
10. M.Moni (2015): "Digital India: Engineering e-Governance Research and Development Solutions - A National Development Agenda", Invited Paper sent for publication in the Forthcoming issue of the Best of India Magazine, Hyderabad (Telengana);
11. Moni.M (2015): "Implementation of Informatics for Agri-Business", Invited Address in the National Conference on "Good Agricultural Marketing Management Practices (GAMMP)", organized by National Council of State Agricultural Marketing Board (COSAMB) in collaboration with Himachal Pradesh State Agricultural marketing Board, on 15-16 September 2015 at Manali, Himachal Pradesh;
12. Moni. M (2015): "Bridging the Development Gaps in Human Resources for Digital India Programme and Make In India Programme", Address during the Inaugural Session and Valedictory Session of the 5th National Conference of CICON 2015 on "Emerging Trends in Science, Technology, Engineering and Management", Shobhit University Meerut, 12 September 2015; Also Co-Chairman of CICON 2015;
13. Moni.M (2015): "Capacity Building and e-Governance in Agriculture and Rural Development: An Informatics Blueprint for Developing Countries", Vol. 48, No.2, African – Asian Journal of Rural Development, July-December 2015, PP 7-63;
14. Moni.M (2015): "e-Governance in Agriculture : Reforms through ICT for Sustainable Agricultural Development in India", The Best of India Magazine, pp 15-23, April-June 2015 issue;
15. Moni.M (2015): "Policy on Adoption of Open Source Software (OSS): Industry & Academia, Wake up", January – March 2015, www.inclusion.skoch.in, published by SKOCH Foundation, Gurgaon, NCR Delhi.
16. Moni.M (2015): "e-Governance in Farming Sector: A Roadmap to enhance Agricultural and Food Security", Section III; Chapter 13 in the Book titled "Modi's Odyssey: Digital India, Developed India", Sameer Kochar (Eds). SKOCH Group Publication, Gurgaon (Haryana), India, December 2015.
17. Moni.M (2015): "Technology as a Trailblazer & Enabler for Accentuating All Round Excellence in Higher Education", Invited Panelist in the Higher Education Forum, 2nd April 2015, Tagore Hall, SCOPE Complex, organised by Engineering Watch Magazine, New Delhi;
18. Moni.M (2015): "Bridging the Cap – Industry and Academia", Presented at Haryana User Meet – Geospatial Technology 2015 (HUM-GT 2015), organised by Society for Geo-informatics and Sustainable Development (SGSD), Gurgaon and Haryana State Remote Sensing Applications Centre (HARSAC), Hissar, April 2015.



Research Papers, Technical Reports and Keynote Addresses of Faculty Members

19. Moni.M (2015) : "Sustainable Development at Panchayat Level : Role of Geographers, Geo-spatial Technologies and ICTs", Presented at Haryana User Meet – Geospatial Technology 2015 (HUM-GT 2015), organised by Society for Geo-informatics and Sustainable Development (SGSD), Gurgaon and Haryana State Remote Sensing Applications Centre (HARSAC), Hissar, April 2015.
20. M.Moni (2015): "e-Governance in Agriculture: Reforms through ICT for Sustainable Agricultural Development in India", Invited presentation in the Three Day Intensive Training Workshop on Innovative/Best Practices in NeGP-Agriculture & Allied Sectors, under the aegis of Capacity Building Programmes of Mission Mode Projects of State Governments & Government of India, organised by the Centre for Innovations in Public Systems (CIPS), Hyderabad (An Autonomous Organization Funded by Government of India) from 24-26 March, 2015 at Port Blair, Andaman & Nicobar Islands (India);
21. Moni.M (2015) : "Digital India: Vehicle for Growth – Prodigious Opportunity for Management Institutions of India", Invited Address at the 28th Convention of Meerut Management Association, titled "Digital India – A vehicle for Growth", on 14th March 2015, IIA Bhawan, Mokhampur Industrial Area, Delhi Road, Meerut, NCR Delhi;
22. M.Moni (2014) : Note for Research & Education Cooperation between the Ministry of Education (Republic of Mauritius) and the SHOBHIT University (India) in the area of Agricultural Informatics and e-Governance Research, 2014;
23. Moni. M (2014): Letter on "ICT and ICT enabled Development in North Eastern Region – Natural Resource Management, Agricultural Development and Inclusive e-Governance Services", General (Retd) Dr. V.K.Singh, Union Minister of State (Independent Charge), Ministry of Development of North Eastern Region, vide letter No: SHOBHIT University/MM/CAleGRS/2014-1 Dated 30th May 2014;
24. Moni. M (2014): Letter on "Issues related to MNIC vs. UID and ICT Development in A&N Islands& Lakshadweep" sent to Hon'ble Shri Rajnath, Union Home Minister, Government of India, vide letter No: SHOBHIT University/MM/CAleGRS/2014-2 Dated 5th June 2014;
25. Moni. M (2014): Letter on "Engineering e-Governance Research and Development Solutions in 4500 Engineering and about 16000 Non-Engineering Colleges of India - A National Development Agenda", sent to Hon'ble Smt. Smriti Zubin Irani, Union Minister of Human Resources Development, Government of India, vide letter No: SHOBHIT University/MM/CAleGRS/2014-3 Dated 20th June 2014;
26. Moni.M (2014): Letter on "Establishment of (a) Ministry of Dalit Affairs, (b) National Dalit University and (c) National Dalit Schools (one per each District) for Dalits to avail emerging opportunities – A Social Justice and Empowerment Priority in India", sent to Hon'ble Shri Thaawar Chand Gehlot, Union Minister of Social Justice and Empowerment, Government of India, vide letter No: SHOBHIT University/MM/CAleGRS/2014-4 Dated 30th June 2014;
27. Moni. M (2014): Letter on "e-Governance in Agriculture: A Digital Spring Board for sustainable agricultural development", sent to Hon'ble Shri Radhamohan Singh, Union Minister of Agriculture, Government of India, vide letter No: SHOBHIT University/MM/CAleGRS/2014-5 Dated 30th June 2014;
28. M. Moni (2014): "Application of ICT for Rural Development", Invited Talk delivered to the Geographic Teachers & Post-Graduate Students of Geography who were attending Department of Science & Technology (NRDMS Division) sponsored Winter School Training Programme in field of Geospatial (15th January – 4th February 2014) organized by the Department of Geography, Kirori Mall College (KMC), University of Delhi and the Society for Geo-Informatics and Sustainable Development (SGSD), Gurgaon, on 30th January, 2014 at Kirori Mal College;
29. M. Moni (2014): "ICT in Agriculture: Necessary Farm Mechanisation Technology to increase farm productivity", Panelist in the Technical Session -4: through "TILLING MY LAND: FARM MECHANIZATION TECHNOLOGY", Asia Africa Agri Business Forum, 4-6 February 2014, held in New Delhi, organized by the Federation of Indian Chambers of Commerce and Industry (FICCI), New Delhi.
30. M. Moni (2014) : "Engineering e-Governance Research and Development Solutions in 4500 Engineering Colleges : A National Agenda", Keynote Address delivered in the Inaugural Session of the 4th National Conference on Recent Trends in Advanced Computing and Information Technology" (CICON-2014), Organized by the Faculty of Electronics, Informatics and Computer Engineering, SHOBHIT University, Meerut, NCR Delhi, Uttar Pradesh (India), 2nd March 2014; Article Published the International Journal of Contemporary Research in Engineering & Technology, PP 1-10, 4(1&2), January-December 2014;
31. M. Moni (2014) : "Content to Connectivity: The Prospective Digital Platform for Inclusive Growth in India", Keynote Address delivered in the Inaugural Session of Technia- SRFLIS India Summit 2014 and International Conference on "Content To Connectivity : Paradigm Shifts in Knowledge Innovation, Information Representation, Information Management System and Librarianship", organized by Technia Institute of Advanced Studies (Delhi) and Satija Research Foundation for Library and Information Science (SRFLIS) India (Delhi), 11-12 April 2014;
32. M. Moni (2014): "e-Governance in Farming Sector: Reforms through Information and Communication Technology (ICT) in India", Agriculture Year Book 2014, Agriculture Today Publications, Sept. 2014, New Delhi;
33. M. Moni (2014) : "Digital India : Reforms through e-Governance", an invited Talk at Babu Vijendra Auditorium, Shobhit University, Gangoh, Saharanpur, Uttar Pradesh (India), on 11th October 2014;
34. M. Moni (2014) : "Content to Connectivity: The Prospective Digital Platform for Inclusive Growth and Development in Indian Agriculture", Chairman of the Inaugural Session and Keynote Address delivered the National Workshop on "Open Access to Agricultural Knowledge for Inclusive Growth and Development", organized by National Academy of

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- Agricultural Research Management (NAARM) of Indian Council of Agricultural Research (ICAR), in collaboration with agINFRA – CIARD – FAO – GFAR [Global Forum for Agricultural Research (GFAR) of FAO Rome], on 29-30 October, 2014 at Hyderabad (India);
35. M. Moni (2014) : "Adoption of Standards : On Path to Sustainability in Information Service Delivery under Digital India Initiative", Keynote Address delivered, at the National Seminar on the theme: "Role of standards – A tool for effective Library Management", organised by the Bureau of Indian Standards (BIS), Government of India, New Delhi, on 17 December 2014;
 36. M. Moni (2013): "An ICT-triggered rural knowledge revolution is on its way in India", ICT Update Newsletter No 73, 2013. The Technical Centre for Agricultural and Rural Co-operation ACP-EU (CTA), Wageningen, The Netherlands; URL [http://publications.cta.int/media/publications/downloads/ICT073E_PD F.pdf](http://publications.cta.int/media/publications/downloads/ICT073E_PD_F.pdf);
 37. M. Moni (2013): "Farm Health Management Information System: DSS for Farm Productivity", participated in the Round Table Discussion on the Theme "Towards a smallholder-led sustainable green revolution in Africa: is ICT the missing link?", organized by Alliance for a Green Revolution in Africa (AGRA), 5th November 2013, during the "ICT4Ag – The Digital Springboard for Inclusive Agriculture" Conference, 4 – 8 November 2013, Kigali, Rwanda;
 38. M. Moni (2013): "e-Governance Research and Development: Role of Institution of Engineers (IE) of India", Chief Guest and Invited Talk delivered under the Institution of Engineers (IE) Meerut Chapter Lecture Series, organized by Institution of Engineers (IE), Gyan Parishad and SHOBHIT University, Modipuram, Meerut, held on 16 November 2013;
 39. M. Moni (2013) : "Strategic Integration of ICT in Agriculture – Agricultural Informatics Policy", Invited Presentation to the Delegation of the Hon'ble Lords of the British House of Parliament, at British High Commission, New Delhi, on 4th October 2013;
 40. M. Moni (2013): "e-Governance Research and Innovative Solutions : Role of Engineering Colleges at Grassroots level" , Chief Guest and Keynote Address delivered in the Inaugural Session of "Opening of Centre for Engineering e-Governance Research Campus Programme" at PAAVAI Engineering College, Namakkal, Salem District, Tamil Nadu (India), held on 31 July 2013;
 41. M. Moni (2013): "e-Governance Research and Innovative Solutions : Role of Engineering Colleges at Grassroots level", Chairman and Address during the National Launching of Engineering e-Governance Research Campus Programme", organized by Engineering Watch Magazine, on 23rd June 2013, at The Constitution Club, New Delhi;

Prof. M. Moni - Professor Emeritus (Agricultural Informatics & e-Governance), and Chairman, CAIRS, Department of Agri-Informatics Engineering, Shobhit University, Meerut

Prof. M. Moni, the Program Director is Professor Emeritus (Agricultural Informatics & e-Governance), Centre for Agricultural Informatics & e-Governance Research Studies, Department of Agri-Informatics Engineering of Shobhit University, Meerut.

"Prof. M. Moni is the Former Director General of National Informatics Centre, which is a premier Institution of Department of Electronics & Information Technology, Ministry of Communications and Information Technology, Government of India, in the areas of e-Governance and Informatics development. A Well Known Senior Technocrat in the field of Informatics and e-Governance in the Country, having more than 34 years of experience, and his research publications / reports / lectures/ Addresses (of about 250) have generated academic and research interests in the areas of regional development, agricultural development and informatics development. Played a significant role in taking e-Governance in India and strived hard, thought strategically for long-term solutions, fought ground realities and challenges faced the country, yet devised ways to succeed. Instrumental in visualising and operationalising the DISNIC programme (1987) - an e-Government Programme in 28 Sectors for about 512+ districts during

1987-92 and Digital Networks for Farmer (DNF) in 1995 which are considered as the major steps towards e-Governance and Agricultural Informatics for Development in India.

Prof. Moni is the Recipient of Seva Ratna Award 2004 (The Centenarian Trust, Chennai) and Bhoggol Bhushan Award 2006 (The Deccan Geographical Society India, Pune) for ICT for Agricultural development (ICT4Ag) in India, and also nominated to the Technology Museum Award, USA 2004 and 2005 for visualising and operationalising the AGMARKNET Project in India."



CENTRE FOR AGRICULTURAL INFORMATICS & E-GOVERNANCE RESEARCH STUDIES



CAIRS

A nonstop reservoir of knowledge

Shobhit University is a NAAC Accredited research-intensive university that shares the values of high-quality teaching within an environment of internationally competitive research. The University seeks to provide a creative and supportive environment in which ideas are generated and flourish.

Student Support systems

The University is committed to create the best learning environment and provide the right equipment and facilities, to help its students to achieve their potential during studies. Well planned student support systems help overall development of students through academic, sports, recreational and professional activities.

Preferred recruitment destination

More than 300 renowned Corporate, Research Organizations and Institutions are patronizing our students by providing excellent Job / Internship offers.

Global Linkage

Shobhit University partners with a number of International Universities for joint study, research and scientific and scholarly output.

University Ranking

Shobhit University has been ranked amongst India's top 50 universities.

International Exchange

Our B.Tech. students have an opportunity to get their credits transferred to University of Westminster, London after two years of study at Shobhit University, Meerut.

Campus beyond boundaries.

Students from different states and countries bring the nation and globe to the University campus. The environment of the University is characteristic of informality, flexibility, humanistic, interactive, cordiality, and above all, esprit-de-corps. There is predominantly a sense of participation across campus.

Meerut - A land of opportunities

Getting educated at Shobhit University, Meerut also makes a great sense due to the fact that the NCR region generates maximum job opportunities for the technical graduates as compared to other industrial centres in the country.



CENTRE FOR AGRICULTURAL INFORMATICS & E-GOVERNANCE RESEARCH STUDIES



About Shobhit University

Shobhit University aims to create a conducive, enabling academic climate to facilitate integration of the younger generation into the logic of the present system and to develop educational means by which men and women deal critically and creatively with reality and discover how to participate in the transformation of their world.

Acknowledging our mission to create the quality human resource in the niche and emerging areas, the Government of India, Ministry of Human Resource Development, vide its Notification No. F-9-37/2004-U.3 (A) dated 8 November, 2006 under section 3 of the University Grants Commission Act, granted Deemed-to-be University status to Shobhit Institute of Engineering & Technology (Shobhit University, Meerut) at Meerut. And Shobhit University Gangoh is a State University, notified by the Government of Uttar Pradesh under UP State Act 03/2012.

The Centre of Agricultural Informatics & e-Governance Research Studies (CAIRS) operates from:



Shobhit University Meerut*

NH-58, Modipuram
Meerut (Uttar Pradesh), NCR Delhi

Shobhit University Gangoh

Adarsh Institutional Area, Babu Vijendra Marg
Gangoh - 247341, Saharanpur District, Uttar Pradesh

Shobhit University Tower
Institutional Area, Pocket-B
Mayur Vihar Phase II, Delhi

Shobhit University House
A-87, Sector-57
NOIDA (Uttar Pradesh), NCR Delhi

Accreditation & Approvals



UGC



PCI



CCIM



BCI



NCTE



RCI



AIU



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NAAC*

