

**Year: B. Tech III (Semester V)**

**Subject Name:** Information and Communication Technology in Agriculture  
**Type of course:** Professional Elective Course

**Subject Code:** BTIT14504

**Rationale:** The livelihoods of millions of people around the world depend upon agriculture. Today Information and Communication Technology is used by governments around the world to improve the productivity, food security as well as employment opportunities of people in rural areas who are dependent on agriculture. This course explores the scope and impact of ICT in agriculture for various tasks including supply chain management, exploration of newer markets, training and access to financial services for farmers as well as risk management for agriculture.

**Teaching and Examination Scheme:**

Teaching Scheme				Theory Marks			Practical Marks		Total
L	T	P	C	TEE	CA1	CA2	TEP	CA3	
3	0	0	3	60	25	15	0	0	100

CA1: Continuous Assessment (assignments / projects / open book tests / closed book tests) CA2: Sincerity in attending classes / class tests / timely submissions of assignments / self-learning attitude / solving advanced problems TEE: Term End Examination TEP: Term End Practical Exam (Performance and viva on practical skills learned in course) CA3: Regular submission of Lab work / Quality of work submitted / Active participation in lab sessions / viva on practical skills learned in course.

**Contents:**

Sr. No.	Contents	Total Hrs.
1.	<b>Introduction:</b> Information and Communication Technology (ICT) in agriculture; Understanding globalizing food markets and challenges for small farmers; Understanding the stages of farming; Applying ICT-enabled services to various aspects of agriculture - use of software for supply chain management, use of GPS and mobile systems to gather and disseminate weather related information, risk management for farmers due to climate change, providing insurance and financial services to farmers; Use of ICT for new business models and public-private partnerships in agriculture.	12
2.	<b>Mobile Devices and Services and their Impact on Agriculture and Rural Development:</b> Benefits of anytime, anywhere mobile connectivity on agricultural livelihoods; Types and availability of mobile technologies – voice, sms, unstructured supplementary service data (USSD), interactive voice response (IVR), GPRS, software apps, WAP, MMS, camera, Bluetooth, mobile web, GPS; SMS	08

	Services to farmers by Department of Agriculture, mobile-enabled early warning systems for farmers, making agricultural marketing more efficient, ability to explore new markets, lowering the cost of information, enabling decision making, reducing transportation cost.	
3.	<b>Enhancing Productivity through ICT:</b> Achieving good farming practices through improved Soil, Nutrient, and Land Management: precision farming, improving nitrogen fertilization, Case study: monitoring livestock to prevent crop damage; Preventing Yield Losses through Proper Planning and Early Warning Systems: Case study: Using satellite data to assess irrigation systems.	08
4.	<b>Broadening farmers' access to Knowledge and Financial Services through ICT:</b> Role of village Knowledge Centers, Touch Screen kiosks, Use of ICT-enabled Financial Services in the Rural Sector, Policy Strategies and Regulatory Issues for ICT-enabled Rural Financial Services, Case study: A common platform (FINO: Financial Inclusion Network and Operations) to deliver financial services to rural India; Improving the financial literacy of farmers through ICT.	08
5.	<b>ICT Applications for Agricultural Risk Management:</b> ICT applications for mitigating, coping or transfer of agricultural risks: Weather forecasting and early warning systems to limit potential loss, dissemination of information regarding pest control, transfer of agricultural risk through insurance and future contracts; Case studies in Risk Management	09

**Suggested Specification table with Marks (Theory): (For B. Tech only)**

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
15	20	20	5	--	--

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create (Bloom's Taxonomy)

**Reference Books/ Reports:**

Sr No.	Title of book /article	Author(s)	Publisher
1.	ICT in agriculture: Connecting Smallholders to Knowledge, Networks, and Institutions	--	The World Bank (Report No: 64605)
2.	Textbook of Agricultural Communication Process and Methods	A.S. Sandhu	Oxford & IBH Publishing Co Pvt.Ltd
3.	Information and Communication Technology for Agriculture and Rural Development	R. Saravanan, C. Kathiresan and T.	New India Publishing Agency

**SARVAJANIK UNIVERSITY**  
**SarvajaniK College of Engineering and**  
**Technology**  
**Bachelor of Technology**

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**Note: Students should refer to the latest editions of books**

**Course Outcomes (CO):**

Sr. No.	CO statements	Marks % weightage
CO-1	Explain the role of various ICT-enabled services in agriculture	25%
CO-2	Select and recommend suitable ICT-based solution for enhancing agricultural productivity	30%
CO-3	Describe the challenges faced by agricultural systems and propose ICT-enabled solutions to overcome these challenges	30%
CO-4	Design risk mitigation systems for agriculture	15%