FINAL REPORT

National Agricultural Innovation Project
(Indian Council of Agricultural Research)

Development of e-Courses for B.Sc. (Agriculture) degree program

Tamil Nadu Agricultural University
Coimbatore-641003
2014

Component : **1.** 1 (ICAR as the Catalyzing Agent for Management of Change in the Indian NARS)

Citation : R.Venkatachalam and K.Ilamurugu. 2014. Final Report of NAIP sub-project 'Development of e-Courses for B.Sc. (Agriculture) degree Program' Tamil Nadu Agricultural University,Coimbatore-3, India.

Disclaimer : The information presented herein is contribution of the team of Professors.

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Preface

When MIT USA announced OCW project for opening their course material to the public in 2003, the Vice-Chancellor of TNAU then took a revolutionary initiative in implementing such an e-courseware at TNAU in the same year using the resources available. Thus, e-courseware, predominantly text in the web format, were hosted in the servers with free access to students. e-Courseware for all undergraduate and postgraduate programs were developed using course teachers as resource persons. Teachers were encouraged to use powerpoint presentations. Students of current day are e-savvy and wary of doing mundane things sitting at one place and they demand a lot of space and time - real as well as virtual. e-Courseware which are interactive and inspiring with graphics and illustrations is required to cater to these **NetGeneration** students.

A proposal on e-Courseware was presented at NARM, Hyderabad during September 2006, though proposals were asked for one hour multi-media modules only. R.Venkatachalam, Coordiantor(ICT),TNAU presented 66 such one hour modules, and at the end, presented the eLearning initiatives of TNAU. Dr.N.T.Yaduraju, National Coordinator, Component 1, NAIP appreciated this eLearning proposal and arranged a meeting with a committee headed by Dr.Mruthyunjaya, National Director, NAIP, Delhi which in turn recommended the proposal to a committee headed by Dr. J.C.Katyal, VC, CCHAU, Hisar, who in their 12th Dec 2006 meeting at PIU-NAIP recommended the project in principle and asked that the available content be peer reviewed. Then with a series of six or seven meetings the project was approved on 31 October, 2007. Thus, the project was developed based on the advice and suggestions of all these committee and eminent scholars, especially Dr.N.T.Yaduraju contributed the most for bringing eLearning Program in SAUs.

During this period from the proposal to the sanction, TNAU collaborated with Cornell University, USA in Education and Research which resulted in the training of TNAU faculties with Cornell Experts at TNAU. Cornell IT expert Mr.Stefen Einarson was mainly responsible for 'Powerpoint+Class' video streaming lectures, which was immediately started upon the sanction of the project. In 2007, all TNAU students owned the laptop PCs due to the availability of connectivity and eLearning content on campus, which resulted in the success of eLearning program.

R.Venkatachalam
Consortium PI
K.Ilamurugu
CoPI

Acknowledgements

First and foremost, we'd like to thank Tamil Nadu Agricultural University for introducing eLearning in India and ICAR and NAIP for strengthening it with funding. We greatly acknowledge the initiative of Dr. N.T.Yaduraju, Coordnatior, NAIP then, without who there wouldn't be any eLearning in SAUs. Our heart full of thanks are to Dr.C.Ramasamy, Vice Chancellor, TNAU, when we started this project, who inspired and backed us all the way to make TNAU truly a eUniversity. Our cheerful thanks are to Dr.K.Ramasamy, Vice Chancellor, TNAU, when we successfully complete the project, who extended his greatest support when it was needed very much.

We greatly acknowledge the unending support and understanding provided by Dr.P.S.Pandey, NC-1, NAIP. We'd like to thank Dr.D.Rama Rao, ND, NAIP who provided support when the project was initiated as well as when it was completed.

Team of teachers comprising TNAU Professors, other SAU Professors and other university Professors who reviewed the content were the heroes of the project and we thank all of them profusely. There were 11 great ladies -Vijaya, Vidya, Kavitha, Vigneswari, Ramah, Gandhimathi, Vasanthi, Jayam, Rajasundari, Sathiya, Shanmugapriya who, as RAs and SRFs, were the backbone of the project, creating PowerPoint slides, editing content, recoding class lecture, hosting lectures and doing zillions of such; out unlimited thanks are due to them.

We thank Dr.K.Vanagamudy,CoPI and Dean when we initiated the project was the driving force to kickstart the project. We thank the ever smiling and inspiring Dean(Agri), Dr. Mahimairaja, who is my(R.Venkatachalam) friend and classmate, for his support when we complete the project.

Our friend Mr. Stefen Einarson, Director Transnational eLearning Programs, Cornell University was responsible for Content+Class video lectures and we'd like to thank him profusely.

It is for the students who are the stakeholders of the project who made it a success and we thank all of them, especially students of TNAU.

Lastly, we appreciate our friends, for providing all the ideas, inspiration and criticism during our daily coffee trips.

R.Venkatachalam
K.Ilamurugu

Executive Summary

The sub-project “Development of eCourses for B.Sc.(Agriculture) degree Program” was sanctioned in October 2007, for a total budget of 179.68 lakhs. The sole consortia leader was Tamil Nadu Agricultural University, Coimbatore who have been actively engaged in completing the objectives of the program.

Background

The contributions of agricultural research in India is clear from the fact that food grain production increased from 45 million tonnes in early 1950s to more than 200 million tonnes in the current decade and milk production has gone up from 20 million tonnes to 100 million tonnes in the same period. All these gains were possible with the network of agricultural scientists in the national agricultural research system with tremendous support from the agricultural education system facilitated by the Sate agricultural Universities (SAU). We need more agricultural scientists to meet these challenges which in turn creates need for more agricultural graduates with current and future knowledge to meet the current threats. Indian National Agricultural Research System along with the state agricultural universities cater to the human resource needs of more than 60 thousand agricultural graduates and scientists every year.

The Need

India needs more than 100 thousand agricultural graduates very year to sustain the food production and processing. The traditional methods of educating this diverse mass in diverse geographical areas is near impossible in the new context of problems which put a greater demand on current and future knowledge. Besides, the new generation of students are tech-savvy, blogging, podcasting, SMSing and net-centric in the always connected world who create a need for use of new technologies in education. **eLearning** is the current trend in synchronous classroom education as well as asynchronous distance education.

The major objectives of the sub-project are:

- Creation of e-course content for B.Sc(Ag) program, syllabus in accordance with national 4th Deans Committee recommendations to supplement class lecture.
- Online (web) and off-line (CD/DVD) delivery of content to enhance class teaching.
- Creation of Shareable Learning Object Repository for efficiency of resource use.
- Hosting the created content at TNAU during development and final hosting to be done through Data Center created under NAIP.

The objective–wise achievements are:

- eContent created for 50 courses covering 1300 hours of class video lectures.
- Created eContent was re-edited, updated and peer-reviewed
- Created eContent hosted in http://tnau.ac.in/eagri and http://tnau.ac.in:8080. and hosted the 1300hours of lecture presentations and 120 guest lectures in local server http://mms.tnau.ac.in
- Offline Content in 3200 DVDs are distributed to the students and other SAUs.Created a question bank of 7500 questions and hosted in server and use for testing in online examination.
- Hosted in the National Server at http://ecourses.iasri.res.in/e-Leaarningdownload3_new.aspx?Degree_Id=01

Way forward

In the post-PC era, Tablets and Mobiles are the mass devices and hence eBooks and iTextBooks could be created for use in these devices. Class+content streaming video lectures have potential for mass use in as a regular university program following the lines of MOOCs (Massively Online Open Courseware) like Coursera, which has more than 6.0 million course registrations. Besides, the econtent could be used in ODL programs of SAUs.

Key words: Agriculture, eLearning, eCourseware, Multimedia, Video Lecture

Part-I: General Information of Sub-project

1. **Title of the sub-project: Development of e-Courses for B.Sc. (Agriculture) degree Program**

2. **Sub-project code: 100901**
3. **Component 1:** ICAR as the Catalyzing Agent for Management of Change in the Indian NARS
4. **Date of sanction of sub-project: 31.10.2007**
5. **Date of completion: 31.03.2014**
6. **Total sanctioned amount for the sub-project:** Rs. 177.95 Lakhs
7. **Total expenditure of the sub-project:**
8. **Consortium leader:**

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9. **List of consortium partners: Tamil Nadu Agricultural University**

S.No.	Consortium Partners	Name of CoPIs	Designation	Full Address
1	Tamil Nadu Agricultural University, Coimbatore-641003, India	R.Venkatachalam PI	Associate Professor(IT)	Agriculktural College & Research Institute, Tamilnadu Agricultural University, Coimbatore-641003 Phone: 0422-6611210 Fax: 0422-6611410 kat@tnau.ac.in

		Dr.K.Ilamurugu CoPI	Professor	Agricultural College & Research Institute, Tamilnadu Agricultural University, Coimbatore-641003 Ph: 0422-6611210 Fax: 0422-6611410 ilmuruguk@tnau.ac.in
		Dr. K.Vanangamudi CoPI	Professor	Agricultural College & Research Institute, Tamilnadu Agricultural University, Coimbatore-641003 Ph: 0422-6611210 Fax: 0422-6611410 deanagri@tnau.ac.in

10. Statement of budget released and utilization partner-wise (` in Lakhs):

	CPI/ CCPI Name, designation & address)	Total budget sanctioned	Fund released (up to closing date)	Fund utilized (up to closing date) (up to March 2014)
CPI	**T N A U , Coimbatore**	17968000	**15783073***	**15515116**

***** *including interest*

Part-II: Technical Details

1. Introduction

Agriculture continues to be the occupation and way of life for more than half of Indian population even today. Sustainable prosperity of farmers and landless agricultural labourers holds the key for improving the overall economic growth of the country. Indian Agriculture had been on traditional lines till the first waves of Green Revolution in the 60s. The Green Revolution gave a sudden boost to the production and productivity of major crops. Thanks to the public policies and investments over the last six decades as well as the enormous progress made by the national agricultural research system (NARS), impressive achievements have been made in improving agricultural productivity and production as well as human longevity. The contributions of agricultural research in India is clear from the fact that food grain production increased from 45 million tonnes in early 1950s to more than 200 million tonnes in the current decade and milk production has gone up from 20 million tonnes to 100 million tonnes in the same period. All these gains were possible with the network of agricultural scientists in the national agricultural research system with tremendous support from the agricultural education system facilitated by the Sate agricultural Universities (SAU). We have to defend the gains already made in production as well as make additional gains in the light of new threats posed by limited energy and water resources and problems caused by biotic and abiotic stresses. We need more agricultural scientists to meet these challenges which in turn creates need for more agricultural graduates with current and future knowledge to meet the current threats.

Indian National Agricultural Research System along with the state agricultural universities cater to the human resource needs of more than 60 thousand agricultural graduates and scientists every year. The traditional methods of educating this diverse mass in diverse geographical areas is near impossible in the new context of problems which put a greater demand on current and future knowledge. Besides, the new generation of students are tech-savvy, blogging, podcasting, SMSing and net-centric in the always connected world who create a need for use of new technologies in education. **eLearning** is the current trend in synchronous classroom education as well as asynchronous distance education. Learning is a deeply personal act that is facilitated when learning experiences are relevant, reliable, and engaging. New technologies have the potential to engage the learners.

However, technology in and of itself may not guarantee better learning. But when effectively deployed, technology can help focus attention while attracting and maintaining a learner's interest. Technology engages learners by structuring and organizing information, by displaying and demonstrating procedures and operations. It can help make a learning experience more memorable and can help relate new information to that which is already known. Technology can simulate a range of conditions, immerse people in virtual environments, and provide safe practice opportunities as mastery is developed—all of which are necessary conditions for maximizing the probability that learning will occur. Perhaps even more important, technology allows us to have relationships with information in our own, unique ways.

Internet has made the world a true global village and hence to become global, the easiest path is to use this global technology in the education as *information is always available, always updatable and always accessible*. This communication revolution has a tremendous effect in globalizing education as well as creating global students. This realization has lead to the Open Courseware (OCW) program of MIT, USA since 2003, culminating in the creation of e-text for more than 10000 courses. Tamilnadu Agricultural University, with a clear understanding of the potential as well the need of eLearning as a way of university system, has taken a lead in integrating eLearning in all undergraduate and programs since 2003. This experiment has lead to the more interactive classes which effectively shifts the question from "*Will technology improve learning?*" to "*How much further will technology let us push the envelope of human cognitive, affective, and kinesthetic experience?*". These questions have lead to the present NAIP project on 'Development e-Courses for B.Sc(Agriculture) degree Program' since 2008.

2. Overall Sub-project Objectives

- Creation of e-course content for B.Sc(Ag) program, syllabi in accordance with national 4th Deans Committee recommendations.
- Online (web) and off-line (CD/DVD) delivery of content to enhance class teaching
- Creation of Shareable Learning Object Repository for efficiency of resource use

- Hosting the created content at TNAU during development and final hosting to be done through Data Center created under NAIP.

3. Sub-project Technical Profile

3.1. Methodologies

The development of e-courses would follow the in the following steps:

- Constitution of content Team
- Content Development
- Content Delivery

3.1. 1. Content Team

Fifty teams of teachers, including one each from outside, were constituted as resource persons for content creation aided by the research scholars employed. *National Content Review Committee* was to be constituted at national level from various SAUs as one per course.

3.1.2. Content Development

e-Course content was developed utilizing the e-text already developed at TNAU over a period spanning from 2003. The e-content was to be peer reviewed by the Content committee and pool of teachers identified at national level. The content was enriched with the following elements:

- 'Content+Class' video capture of class lectures
- Predominantly HTML based content with hyperlinks
- Images / audio wherever appropriate
- Each lecture is a lesson
- Video of techniques wherever appropriate
- Questions & tests for each module
- Case studies related to courses
- Additional e-resources

3.1.3 Content Delivery

e-Course content developed was delivered online (web) as main mode and offline (CD/DVD) as secondary mode of delivery.

- ✓e-content for all SAUs / colleges hosted initially at a server facility at TNAU and later e-Content to be hosted in National Data Center and Mirrored to TNAU facility for easy updating of the content from time to time
- ✓web based content delivery with LMS (leaning management system) main mode and access would be provided to all teachers for updating e-content
- ✓CD/DVD mass produced - secondary mode

3.1.4 Work Program

There are 50 courses for the B.Sc.(Agriculture) degree. These courses are taught in 125 credits. The list of courses under ten major departments are given below:

SL#	Department	Number of Courses	Total Credits
1	Agronomy	9	19
2	Breeding	5	15
3	Soilscience	3	9
4	Entomology	3	9
5	Economics	5	10
6	Pathology	4	12
7	Ag.Engineering	4	9
8	Horticulture	4	11
9	Extension	3	6
10	Stat /comp	2	4
11	others	8	21
	Total	**50**	**125***

These courses are offered in odd and even semesters. Hence it is possible to cover all the courses in two semester duration when the classes are ongoing. The program of work would be in the following steps, some of which would run parallel.

As the Courses are distributed in odd and even semesters, the team of teachers would develop content in tow phases i.e., odd and even semesters. The development was distributed in the following manner:

SL#	Details	I Year	II Year	III Year	IV
1	Courses	25	25	content review & hosting at Sever	content review and hosting at National Facility
2	**Credits**	**60**	**65**		
3	**Total Modules or lessons**	**960**	**1040**		

3.2. Capacity Building

The teachers involved in undergraduate teaching at Tamil Nadu Agricultural University are going to be involved in creating content for this project. These teachers are to be given orientation in preparing a repository of learning objects, creating peer reviewed content, creating multimedia lessons using these learning objects. Three trainings were proposed and all these are essential for totally equipping the teachers for the project holistically.

- Research Scholars with domain expertise would be employed on contract basis ffor the project period..
- Training the TNAU Team at TNAU, NAARM and VASAT-ICRISAT for multimedia content creation and e-content creation for SCORM standards

3.3. Creation of ICT facility

Because of the sheer size of the project, a shared ICT facility with content creation facility and content delivery facility at TNAU Coimabtore campus would be created. eContent for all 50 courses of B.Sc(Ag) totaling 125 credits (16 lectures or modules for each credit) would be created by 50 teams of teachers aided by Research scholars employed for this purpose and content creation software. Common IT facility would be created at TNAU to be shared by the team of teacher resource persons.

3.4 Expected Outcome / Impact / Deliverables

The developed e-Courseware would cater to the updated information needs of the graduates of B.Sc.(Agriculture) all over India as the e-Courseware are available through internet in the web format.

3.4.1. Deliverables

- Creation of interactive and multimedia course content for B.Sc(Ag) program, syllabus in accordance with national 4th Deans Committee recommendations
- Creation of e-Content in the web format and deployment in the web servers to for online access through out India
- Creation of Shareable Learning Object Repository for efficiency of resource use
- Deployment of web content in the National Webserver facility to be created at a central location
- Off-line delivery of content by making multiple copies of CD/DVDs and distribution to facilitate off-line use of content where net connectivity is a constraint
- Providing e-Courseware creates a always available professor, thus reaching the unreached

4. Research Achievements with Summary

4.1. eContent Creation

The eContent was created by following semester-wise courses handled by teachers with the following workflow:

- Follow Class of Professors
- Prepare Lecture Outline
- Prepare PowerPoint for Class
- Prepare Lecture Notes
- **Class Lecture Video Capture**
- Create learning objects
- Postproduction with content
- Re-editing and peer review
- Hosting of eContent

Fifty teams of teachers, including one each from outside, were constituted as resource persons for content creation aided by the research scholars employed. *National Content Review Committee* was constituted at national level from various SAUs as one per course.

List of Teachers involved in the development of eCourse content

Name of e-course	**Name of Professor**	**Name of Organization**
Principle of Agronomy including Agricultural Meteorology (2+1)	Dr. N.K. Sathiamoorthy, Asst. Professor	Tamilnadu Agricultural University, Coimbatore
Field crops Kharif (2+1)	Dr. A. Balakrishnan, Professor	Tamilnadu Agricultural University, Coimbatore
Weed Management (1+1)	Dr. C. Chinnasamy, Professor	Tamilnadu Agricultural University, Coimbatore
Water Management including Micro-irrigation (2+1)	Dr. P. M. Shanmugam, Asst. Professor,	Tamilnadu Agricultural University, Coimbatore
Field crops *Rabi* (2+1)	Dr. C. Jayanthi, Professor	Tamilnadu Agricultural University, Coimbatore
Farming Systems and Sustainable Agriculture (1+1)	Dr. S. Ramasamy, Professor	Tamilnadu Agricultural University, Coimbatore
Introductory Agriculture (Ancient heritage, Agriculture Scenario and Gender equity in Agriculture) (1+0)	Dr. N. Maragatham, Professor	Tamilnadu Agricultural University, Coimbatore
Principles of Genetics (2+1)	Dr. R. Renuka, Asst Professor	Tamilnadu Agricultural University, Coimbatore
Principles of Seed Technology (2+1)	Dr. P. Srimathi, Professor	Tamilnadu Agricultural University, Coimbatore
Principles of Plant Breeding (2+1)	Dr. P. Jayamani, Associate Professor	Tamilnadu Agricultural University, Coimbatore
Principles of Plant Biotechnology (2+1)	Dr. A. Senthil, Asst Professor	Tamilnadu Agricultural University, Coimbatore
Breeding of field/horticulture crops (2+1)	Dr. C. Babu, Associate Professor,	Tamilnadu Agricultural University, Coimbatore
Insect Morphology and Systematics (2+1)	Dr. K.N. Raghumurthy, Professor	Tamilnadu Agricultural University, Coimbatore
Insect Ecology and Integrated Pest Management including Beneficial insects (2+1)	Dr. S. Subramanian, Associate Professor	Tamilnadu Agricultural University, Coimbatore
Crop pests and stored Grain Pests and their Management (2+1)	Dr. S.V. Krishnamurthy, Professor	Tamilnadu Agricultural University, Coimbatore
Manures, Fertilizers and Agrochemicals (2+1)	Dr. A. Vadivel, Professor	Tamilnadu Agricultural University, Coimbatore
Introduction to Soil Science (2+1)	Dr. D. Vasanthi, Professor	Tamilnadu Agricultural University, Coimbatore

Soil Chemistry, Soil Fertility and Nutrient Management (2+1)	Prof. A. Vadivel, Professor,	Tamilnadu Agricultural University, Coimbatore
Principles of Agricultural Economics (2+0)	Dr. M. Chandrasekar, Professor	Tamilnadu Agricultural University, Coimbatore
Agricultural Finance and Co-operation (1+1)	Dr. M. Suresh Kumar, Associate Professor	Tamilnadu Agricultural University, Coimbatore
Agricultural Marketing, Trade and prices (1+1)	Dr. S. Senthilnathan, Professor	Tamilnadu Agricultural University, Coimbatore
Production Economics and Farm Management (1+1)	Dr. M. Chandrasekar, Professor & Head	Tamilnadu Agricultural University, Coimbatore
Fundamentals of Agri-Business Management (including Product Development, Appraisal and Monitoring) (1+1)	Dr. K. Mahendran, Associate Professor	Tamilnadu Agricultural University, Coimbatore
Plant Pathogens and Principles of Plant Pathology (3+1)	Dr. G. Karthikeyan, Associate Professor	Tamilnadu Agricultural University, Coimbatore
Diseases of Field Crops and their Management (2+1)	Dr. P. Lakshmanan, Professor	Tamilnadu Agricultural University, Coimbatore
Diseases of Horticultural crops and their Management (2+1)	Dr. V. Prakasam, Professor	Tamilnadu Agricultural University, Coimbatore
Introductory Nematology (1+1)	Dr. S.N. Srinivasan, Asst Professor	Tamilnadu Agricultural University, Coimbatore
Fundamentals of Soil, Water and Conservation Engineering (2+1)	Dr. A. Raviraj, Associate Professor	Tamilnadu Agricultural University, Coimbatore
Farm Power and Machinery (1+1)	Dr. Singaravel, Professor	Tamilnadu Agricultural University, Coimbatore
Protected Cultivation and Post-harvest Technology (1+1)	Dr. Thirupathy,	Tamilnadu Agricultural University, Coimbatore
Renewable Energy (1+1)	Dr. P.Venkatachalam, Professor	Tamilnadu Agricultural University, Coimbatore
Production Technology of Fruit Crops (2+1)	Dr. K. Sooriyanathasundaram, Professor	Tamilnadu Agricultural University, Coimbatore
Production Technology of Vegetables and Flowers (2+1)	Dr. T. Saraswathi, Professor	Tamilnadu Agricultural University, Coimbatore

Production Technology of Spices, Aromatics medicinal and Plantation crops (2+1)	Dr. V. Rajashree, Asst Professor	Tamilnadu Agricultural University, Coimbatore
Post-harvest Management and value addition of fruits and vegetables (1+1)	Dr. D. Malathi, Professor	Tamilnadu Agricultural University, Coimbatore
Dimensions of Agricultural Extension (1+1)	Dr. M. Asokhan, Associate Professor	Tamilnadu Agricultural University, Coimbatore
Fundamentals of Rural Sociology and Educational Psychology (2+0)	Dr. N. Sriram, Assistant Professor,	Tamilnadu Agricultural University, Coimbatore
Extension methodologies for Transfer of Agricultural Technology (1+1)	Dr. N. Anandaraja, Assistant Professor	Tamilnadu Agricultural University, Coimbatore
Crop Physiology (2+1)	Dr. S. Vincent, Associate Professor	Tamilnadu Agricultural University, Coimbatore
Biochemistry (2+1)	Dr. P. Govindaraju, Professor	Tamilnadu Agricultural University, Coimbatore
Agricultural Microbiology (2+1)	Dr. Kumutha, Professor	Tamilnadu Agricultural University, Coimbatore
Social & Farm Forestry (2+1)	Mr. K. Bharanidaran, Asst Professor	Tamilnadu Agricultural University, Coimbatore
Statistics (1+1)	Mr. M. Suresh, Professor Associate Professor	Tamilnadu Agricultural University, Coimbatore
Introduction to Computer and Applications (1+1)	Mrs. Sridevi, Asst Professor	Tamilnadu Agricultural University, Coimbatore
Applied Mathematics 2+1	Ms. R. Pangayar Selvi, Asst Professor	Tamilnadu Agricultural University, Coimbatore
Live stock production and Management (2+1)	Dr. R. Balagopal, Professor,	Tamilnadu Agricultural University, Coimbatore
Entrepreneurship Development (1+1)	Dr. K. Uma, Associate Professor	Tamilnadu Agricultural University, Coimbatore
Comprehension and Developing Communication Skills in English (1+1)	Dr.S.P.Shanmugapriya, Assistant Professor	Tamilnadu Agricultural University, Coimbatore
Environmental Science (2+0)	Dr. Maheshwari, Associate Professor	Tamilnadu Agricultural University, Coimbatore

4.2. Capacity Building

The teachers involved in undergraduate teaching at Tamil Nadu Agricultural University are going to be involved in creating content for this project. These teachers were be given orientation in preparing a repository of learning objects, creating peer reviewed content, creating multimedia lessons using these learning

objects and educational technology. In all nine trainings were conducted on educational technology and ICT with internal, national and international faculty and 150 teachers were trained.

List of Trainings Conducted

S.No.	Date	Name of the training	No. of participants
1.	20.02.08 & 21.02.08	Training on capturing of lectures and converting them into lecture document repositories.	15
2.	19.03.08	Training on e learning to e learning team by Dr. Stefan, Cornell University, USA.	10
3.	20.03.08	Training on e learning to undergraduate course teachers of main campus & out campus TNAU, Coimbatore by Dr. Stefan, Cornell University, USA.	27
4.	20.03.08	Training on video editing of lectures and publishing them to web to out campus teachers	07
	31.04.08	Training on online examination to undergraduate teachers of TNAU, Coimbatore	29
5.	01.04.08	Training on online examination to undergraduate teachers of out campus & affiliated colleges of TNAU, Coimbatore (Mid sem exam)	09
6.	05.05.08	Training on online examination to undergraduate teachers of out campus & affiliated colleges of TNAU, Coimbatore (Final exam)	11
7.	25.08.08 & 26.08.08	Training on online examination to undergraduate teachers of TNAU, Coimbatore (Mid sem exam)	30
8.	29.08.08	Training on online examination to undergraduate teachers of out campus & affiliated colleges of TNAU, Coimbatore (Mid sem exam)	16

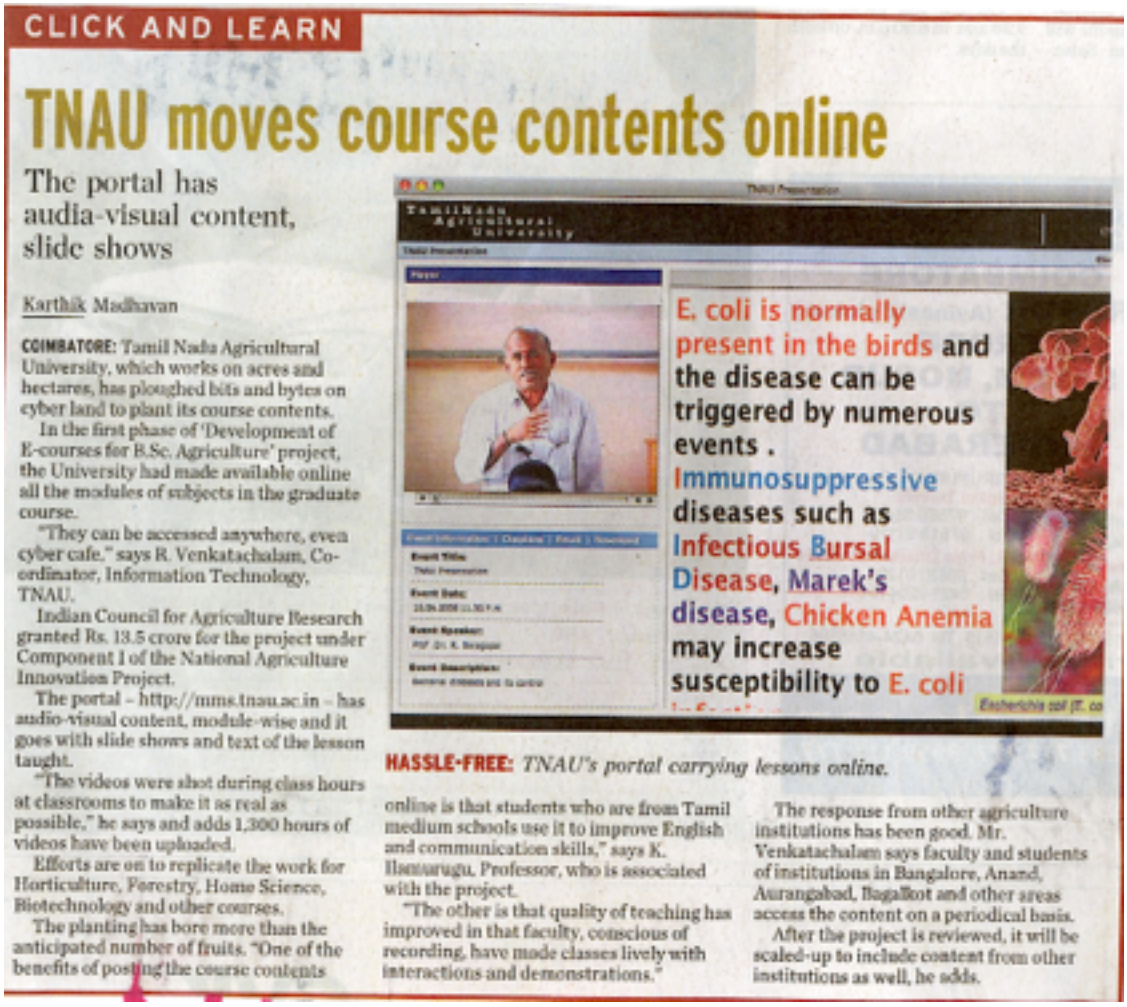
4.3. Achievements

Cumulative achievements since beginning of the sub-project are:

- eContent created for 50 courses covering 1300 hours of class video lectures
- Created eContent was re-edited, updated and peer-reviewed
- Created eContent hosted in http://tnau.ac.in/eagri and http://tnau.ac.in:8080
- 120 hrs of video guest lectures created
- Webserver and Database server installed and hosted the 1300hours of lecture presentations and 120 guest lectures in local server http://mms.tnau.ac.in

- Offline Content in 3200 DVDs are distributed to the students and other SAUs

- Created a question bank of 7500 questions and hosted in server and use for testing in online examination
- Conducted 8 trainings on ICT and eContent creation and 2 trainings on educational technology with national and international experts - 150 teachers were trained



CLICK AND LEARN

TNAU moves course contents online

The portal has audia-visual content, slide shows

Karthik Madhavan

COIMBATORE: Tamil Nadu Agricultural University, which works on acres and hectares, has ploughed bits and bytes on cyber land to plant its course contents.

In the first phase of 'Development of E-courses for B.Sc. Agriculture' project, the University had made available online all the modules of subjects in the graduate course.

"They can be accessed anywhere, even cyber cafe," says R. Venkatachalam, Co-ordinator, Information Technology, TNAU.

Indian Council for Agriculture Research granted Rs. 13.5 crore for the project under Component I of the National Agriculture Innovation Project.

The portal – http://mms.tnau.ac.in – has audio-visual content, module-wise and it goes with slide shows and text of the lesson taught.

"The videos were shot during class hours at classrooms to make it as real as possible," he says and adds 1,300 hours of videos have been uploaded.

Efforts are on to replicate the work for Horticulture, Forestry, Home Science, Biotechnology and other courses.

The planting has bore more than the anticipated number of fruits. "One of the benefits of posting the course contents online is that students who are from Tamil medium schools use it to improve English and communication skills," says K. Ilamurugu, Professor, who is associated with the project.

"The other is that quality of teaching has improved in that faculty, conscious of recording, have made classes lively with interactions and demonstrations."

The response from other agriculture institutions has been good. Mr. Venkatachalam says faculty and students of institutions in Bangalore, Anand, Aurangabad, Bagalkot and other areas access the content on a periodical basis.

After the project is reviewed, it will be scaled-up to include content from other institutions as well, he adds.

HASSLE-FREE: *TNAU's portal carrying lessons online.*

- Hosted in the National Server at http://ecourses.iasri.res.in/e-Leaarningdownload3_new.aspx?Degree_Id=01.
  More than 50% of the courses downloaded from the national server are of B.Sc.(Ag) courses (as of 31.3.2014).

Objective-wise Achievements

Targets	**Achievements**
Creation of e-Content for supplementing class lectures for 50 courses	eContent created for a total of 1300 hours of lectures for 50 courses in eight semesters, 40 manuals created for practical exercises at 15 exercise per course and hosted in local server. 120 hrs of video guest lectures created
Online - web hosting and offline delivery of created content	Webserver and Database server installed and hosted the 1300hours of lecture presentations and 120 guest lectures in local server http:// mms.tnau.ac.in • Hosted in the National Server at http://ecourses.iasri.res.in Offline Content in 3200 DVDs are distributed to the students and other SAUs
Creation of shareable learning objects	a) Created 30,000 text objects, 5000 images, 1000 video/audio clippings, and metadata of objects are created. b) Created a question bank of 7500 questions and hosted in server and use for testing in online examination c) Created 120hours of guest / CAS lectures
Re-editing and reformatting of content as per PMAC recommendations	PMAC recommended re-editing of the content teaming with teachers as suggested by the PMAC with links to econtent. Re-editing was completed for all the courses and reformatted to web & PDF formats
Capacity building of Teachers	Conducted 8 trainings on ICT and eContent creation and 2 trainings on educational technology with national and international experts - 150 teachers were trained

4.4. Impact

It is very difficult to measure the impact of using eContent as supplementing class lecture. However, these are the informal feed back got from the teachers and students.

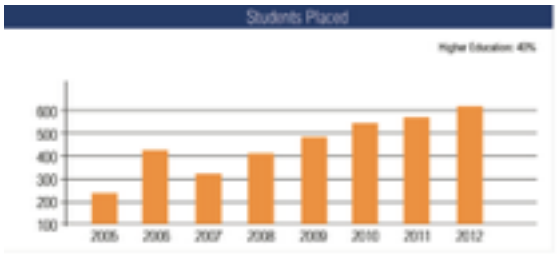
➢IT & Presentation skills of teachers improved

➢Better interaction of students with teachers

➢Sharing of content and knowledge among students

➢Improvements on the presentation skills of the students

➢Improvements in the employability of students at TNAU(as shown below)



e-Learning: TNAU Leads the Way

THE HINDU • WEDNESDAY, DECEMBER 1, 2010

Where chalk and talk is given the go-by

Whiteboards, laptops, overhead projectors with white screens, wi-fi, LAN and what not

Anutha Kannan

COIMBATORE: This is the age of digital classrooms – a concept that is being adopted by emerging colleges and business schools. The digital paraphernalia gets incorporated into the concrete infrastructure even during the time of construction.

But a State-run university housed in colonial buildings is getting its classrooms revamped to keep up with the modern demands. The Tamil Nadu Agricultural University has started modernising its classrooms. It expects to complete the works by January 2011.

The old-world colonial charm in the exterior has no changed. But the moment one enters a classroom, one is brought to the immediate present of whiteboards, laptops, overhead projectors with white screens, wi-fi, LAN and LCDs.

The seating does not conform to the conventional style. So far, four classrooms and two laboratories have been completed. And, each one is different. One is in the shape of a rectangle, the other a circle, yet another in a semi-circle, another in tapering rows, while yet another is in steps (as in an auditorium).

The change is not only in infrastructure – the physical aspect. It is also seen in the teaching and learning. Teachers use the whiteboard sparingly to write with a marker pen. Most of the courseware is prepared as a power point presentation and brought in the form of a pen drive.

"When practical sessions that involve calculations are to be done by the students, they carry laptops to the class. Otherwise, a single system is used and the content is enlarged on the white screen," A. Rajarajan, Dean (Agriculture), says.

M.K. Shivaa, Professor, Education, says that classes have become more interactive and interesting for students. "The conventional chalk and talk method has been done away with, with the introduction of the modern classrooms."

DIFFERENT CLASS, DIFFERENT EXPERIENCE: *A quiet revolution is taking place in a classroom in the Tamil Nadu Agricultural University, Coimbatore. An ICT (information and communications technology) - enabled classroom under way in the university. At Right, a different model of classroom, where the teacher is at the centre and nearer the students.* — PHOTOS: M. PERIASAMY.

TEACHING & LEARNING

Devoid of noise

Students now have air-conditioned classrooms devoid of noise enhancing their concentration levels. "Learning is made more effective" - this is the underlying statement that can be inferred from the various comments drawn from the students.

Not only learning, assessment is also mostly done digitally.

Students use their laptops to answer multiple choice questions.

The courseware for most of the subjects is loaded on the university's website. Students access the material through wi-fi even in their hostels.

According to P. Murugesa Boopathi, Vice-Chancellor of the university, the classrooms are being designed to international standards. "The university has entered into MoUs with nearly 45 international and national universities for dual degree and exchange programmes. Hence, we also have to upgrade our standards to meet international standards."

4.4. Challenges

The main challenge was organising the teachers team along with peer reviewers who are all highly educated intellectuals. Further, educating the professors about use of copyrighted econtent was a major challenge. Finally, dealing with so much of

digital content in various formats and hosting in different CMS proved to be the most challenging task.

5. Innovations

i) eContent created for 50 courses covering 1300 hours of class video lectures was created by following classes handled by professors in two years covering all 8 semesters of B.Sc.(Ag) program.

The best and fast way to create ecourseware for full degree program was found to be following actual class of professors teaching courses semester-wise rather than off-class creation of content. The highlight of the courseware development was *Class + Content*, i.e. capturing of all classes by videographing lecture in the classroom and syncing with presentation and the whole presentation is streamed online and off-line. All 1300 lectures of B.Sc.Agriculture program were captured

along with PowerPoint presentation and econtent. The introduction of *Class + Content,* portable-anytime-anywhere lectures with content, has captivated the students and there was a remarkable improvement on the presentation skills of the students. The availability of econtent inspired all the students to purchase their own laptops for using the content off-line also. The streaming content is available at http://mms.tnau.ac.in

ii) Capacity Building: Conducted 8 trainings on ICT and eContent creation and two trainings on educational technology with national and international experts - 150 teachers were trained. International and National faculties were brought to TNAU for training more number of teachers rather than sending a few teachers outside for taining.

Professors of Banaras Hindu University, Varanasi, Sardar Patel University, Meerut and Assam Agricultural University were trained in handling ICT tools. They w

ere also trained to capture and create video lectures with PowerPoint using classroom as studio, thus passing on the experience at TNAU. Further, the three universities were supported by TNAU team in setting up eContent creation facility at respective universities.

6. Knowledge Products Developed

Knowledge Products Developed: 50

List of 50 E-Courses with Teachers

Name of e-courses	Name of Professor	Name of Organization
Principle of Agronomy including Agricultural Meteorology (2+1)	Dr. N.K. Sathiamoorthy, Asst. Professor	Tamilnadu Agricultural University, Coimbatore
Field crops Kharif (2+1)	Dr. A. Balakrishnan, Professor	Tamilnadu Agricultural University, Coimbatore

Weed Management (1+1)	Dr. C. Chinnasamy, Professor	Tamilnadu Agricultural University, Coimbatore
Water Management including Micro-irrigation (2+1)	Dr. P. M. Shanmugam, Asst. Professor,	Tamilnadu Agricultural University, Coimbatore
Field crops *Rabi* (2+1)	Dr. C. Jayanthi, Professor	Tamilnadu Agricultural University, Coimbatore
Farming Systems and Sustainable Agriculture (1+1)	Dr. S. Ramasamy, Professor	Tamilnadu Agricultural University, Coimbatore
Introductory Agriculture (Ancient heritage, Agriculture Scenario and Gender equity in Agriculture) (1+0)	Dr. N. Maragatham, Professor	Tamilnadu Agricultural University, Coimbatore
Principles of Genetics (2+1)	Dr. R. Renuka, Asst Professor	Tamilnadu Agricultural University, Coimbatore
Principles of Seed Technology (2+1)	Dr. P. Srimathi, Professor	Tamilnadu Agricultural University, Coimbatore
Principles of Plant Breeding (2+1)	Dr. P. Jayamani, Associate Professor	Tamilnadu Agricultural University, Coimbatore
Principles of Plant Biotechnology (2+1)	Dr. A. Senthil, Asst Professor	Tamilnadu Agricultural University, Coimbatore
Breeding of field/horticulture crops (2+1)	Dr. C. Babu, Associate Professor,	Tamilnadu Agricultural University, Coimbatore
Insect Morphology and Systematics (2+1)	Dr. K.N. Raghumurthy, Professor	Tamilnadu Agricultural University, Coimbatore
Insect Ecology and Integrated Pest Management including Beneficial insects (2+1)	Dr. S. Subramanian, Associate Professor	Tamilnadu Agricultural University, Coimbatore
Crop pests and stored Grain Pests and their Management (2+1)	Dr. S.V. Krishnamurthy, Professor	Tamilnadu Agricultural University, Coimbatore
Manures, Fertilizers and Agrochemicals (2+1)	Dr. A. Vadivel, Professor	Tamilnadu Agricultural University, Coimbatore
Introduction to Soil Science (2+1)	Dr. D. Vasanthi, Professor	Tamilnadu Agricultural University, Coimbatore
Soil Chemistry, Soil Fertility and Nutrient Management (2+1)	Prof. A. Vadivel, Professor,	Tamilnadu Agricultural University, Coimbatore
Principles of Agricultural Economics (2+0)	Dr. M. Chandrasekar, Professor	Tamilnadu Agricultural University, Coimbatore
Agricultural Finance and Co-operation (1+1)	Dr. M. Suresh Kumar, Associate Professor	Tamilnadu Agricultural University, Coimbatore
Agricultural Marketing, Trade and prices (1+1)	Dr. S. Senthilnathan, Professor	Tamilnadu Agricultural University, Coimbatore
Production Economics and Farm Management (1+1)	Dr. M. Chandrasekar, Professor & Head	Tamilnadu Agricultural University, Coimbatore

Fundamentals of Agri-Business Management (including Product Development, Appraisal and Monitoring) (1+1)	Dr. K. Mahendran, Associate Professor	Tamilnadu Agricultural University, Coimbatore
Plant Pathogens and Principles of Plant Pathology (3+1)	Dr. G. Karthikeyan, Associate Professor	Tamilnadu Agricultural University, Coimbatore
Diseases of Field Crops and their Management (2+1)	Dr. P. Lakshmanan, Professor	Tamilnadu Agricultural University, Coimbatore
Diseases of Horticultural crops and their Management (2+1)	Dr. V. Prakasam, Professor	Tamilnadu Agricultural University, Coimbatore
Introductory Nematology (1+1)	Dr. S.N. Srinivasan, Asst Professor	Tamilnadu Agricultural University, Coimbatore
Fundamentals of Soil, Water and Conservation Engineering (2+1)	Dr. A. Raviraj, Associate Professor	Tamilnadu Agricultural University, Coimbatore
Farm Power and Machinery (1+1)	Dr. Singaravel, Professor	Tamilnadu Agricultural University, Coimbatore
Protected Cultivation and Post-harvest Technology (1+1)	Dr. Thirupathy,	Tamilnadu Agricultural University, Coimbatore
Renewable Energy (1+1)	Dr. P.Venkatachalam, Professor	Tamilnadu Agricultural University, Coimbatore
Production Technology of Fruit Crops (2+1)	Dr. K. Sooriyanathasundaram, Professor	Tamilnadu Agricultural University, Coimbatore
Production Technology of Vegetables and Flowers (2+1)	Dr. T. Saraswathi, Professor	Tamilnadu Agricultural University, Coimbatore
Production Technology of Spices, Aromatics medicinal and Plantation crops (2+1)	Dr. V. Rajashree, Asst Professor	Tamilnadu Agricultural University, Coimbatore
Post-harvest Management and value addition of fruits and vegetables (1+1)	Dr. D. Malathi, Professor	Tamilnadu Agricultural University, Coimbatore
Dimensions of Agricultural Extension (1+1)	Dr. M. Asokhan, Associate Professor	Tamilnadu Agricultural University, Coimbatore
Fundamentals of Rural Sociology and Educational Psychology (2+0)	Dr. N. Sriram, Assistant Professor,	Tamilnadu Agricultural University, Coimbatore
Extension methodologies for Transfer of Agricultural Technology (1+1)	Dr. N. Anandaraja, Assistant Professor	Tamilnadu Agricultural University, Coimbatore

Crop Physiology (2+1)	Dr. S. Vincent, Associate Professor	Tamilnadu Agricultural University, Coimbatore
Biochemistry (2+1)	Dr. P. Govindaraju, Professor	Tamilnadu Agricultural University, Coimbatore
Agricultural Microbiology (2+1)	Dr. Kumutha, Professor	Tamilnadu Agricultural University, Coimbatore
Social & Farm Forestry (2+1)	Mr. K. Bharanidaran, Asst Professor	Tamilnadu Agricultural University, Coimbatore
Statistics (1+1)	Mr. M. Suresh, Professor Associate Professor	Tamilnadu Agricultural University, Coimbatore
Introduction to Computer and Applications (1+1)	Mrs. Sridevi, Asst Professor	Tamilnadu Agricultural University, Coimbatore
Applied Mathematics 2+1	Ms. R. Pangayar Selvi, Asst Professor	Tamilnadu Agricultural University, Coimbatore
Live stock production and Management (2+1)	Dr. R. Balagopal, Professor,	Tamilnadu Agricultural University, Coimbatore
Entrepreneurship Development (1+1)	Dr. K. Uma, Associate Professor	Tamilnadu Agricultural University, Coimbatore
Comprehension and Developing Communication Skills in English (1+1)	Dr.S.P.Shanmugapriya, Assistant Professor	Tamilnadu Agricultural University, Coimbatore
Environmental Science (2+0)	Dr. Maheshwari, Associate Professor	Tamilnadu Agricultural University, Coimbatore

7. Patents (Filed/Granted)

S. No.	Title of Patent	Inventor(s) (Name & Address)	Filed/Published/ Granted (No./ Date)	Responsible Partner
	Nil			

8. Linkages and Collaborations

Linkages developed with National and International agencies for collaboration and sustenance of the project

i. MANAGE, Hyderabad for developing eCourseware for Virtual Training Program, including portal development

ii. IFFRI, Washington for creation of Agricultural Knowledge Management Portal: http://www.advanceagripractice.in

iii. Michigan State University, USA for Propagating eLearning and eExtention in Horticulture through Indian Horticultural Alliance (IHDA)

iv. University of Illinois, USA for Developing ICT-A Academy in India.

v. Agricultural Innovation Partnership (AIP) program of USAID & Govt. of India for replicating eLearning initiatives of TNAU to SAUs of Eastern UP.

9. Status on Environmental and Social Safeguard Framework

Does not apply

10. Constraints, if any and Remedial Measures Taken

NIL

11. **Publications** (As per format of citation in Indian Journal of Agricultural Sciences)

A. Research papers in peer reviewed journals

S. No.	Authors, Title of the paper, Name of Journal, Year, Vol. & Page No.	NAAS Ratings	Responsible Partner
.	NIL		

B. Books/ Book chapters/ Abstracts/ Popular articles, Brochures, etc.

E-Learning: An Experience, K. Vanangamudi, R. Venkatachalam, K. Ilamurugu, M. Djanaguiraman and S. Sridevy. 2010. Agrobios, p278

12. Media Products Developed/Disseminated

S. No.	CD, Bulletins, Brochures, etc. (Year wise)	No. of Copies	Responsible Partner
1	eLearning and AgriTech portal-Brochure - English	1000	TNAU
2	Training Manual for Lecaure capture	25	TNAU

13. Meetings/Seminars/Trainings/Kisan Mela, etc. organized

Trainings Organized

S.No.	Date	Name of the training	No. of participants
1.	20.02.08 & 21.02.08	Training on capturing of lectures and converting them into lecture document repositories.	15
2.	19.03.08	Training on e learning to e learning team by Dr. Stefan, Cornell University, USA.	10
3.	20.03.08	Training on e learning to undergraduate course teachers of main campus & out campus TNAU, Coimbatore by Dr. Stefan, Cornell University, USA.	27

4.	20.03.08	Training on video editing of lectures and publishing them to web to out campus teachers	07
	31.04.08	Training on online examination to undergraduate teachers of TNAU, Coimbatore	29
5.	01.04.08	Training on online examination to undergraduate teachers of out campus & affiliated colleges of TNAU, Coimbatore (Mid sem exam)	09
6.	05.05.08	Training on online examination to undergraduate teachers of out campus & affiliated colleges of TNAU, Coimbatore (Final exam)	11
7.	25.08.08 & 26.08.08	Training on online examination to undergraduate teachers of TNAU, Coimbatore (Mid sem exam)	30
8.	29.08.08	Training on online examination to undergraduate teachers of out campus & affiliated colleges of TNAU, Coimbatore (Mid sem exam)	16
9	12 May 2012	Training conducted to Faculty from Sardat Patel University, Meerut and Banaras Hindu University on eLearning content creation, video lecture capturing	6
10	Sep 2013	Training conducted to Faculty from Assam Agricultural University on eLearning content creation, video lecture capturing	3

14. Participation in Conference/ Meetings/Trainings/ Radio talks, etc.

S. No.	Details of Meetings/Seminars/ Trainings/Radio talk, etc.(Name &Address)	Duration (From-To)	Participant (Name & Address)
1	*R.Venkatachalam.* 2011. eLearning in Agricultural Education. *National Workshop on Information and Communication Technology in Agriculture (ICT-A)*, held during 9-10.8.2011 at Tamil Nadu Agricultural University, Coimbatore, India.	9-10.8.2011	R.Venkatachalam, PI K.Ilamurugu, CoPI

15. Foreign Trainings/Visits:

S. No.	Name, Designation, Address of the Person	Visit/Training/ Seminar its Place, Organization and Duration (From-To)	Dates of Seminar Delivered and Report Submitted on Return	Follow up Action	Total Cost (`)
	Nil				

16. Performance Indicators

Performance Indicators for Component-1: ICDS

Sl. No.	Indicator	Cumulative from inception to 31.03.2014
ICDS		
1.	No. of hits on the sub-project website	**37500**
	Number of Downloads from the National Server at http://ecourses.iasri.res.in	**17796** (out of a total of 34403 of all ecourses)
2.	Number of Knowledge products developed: a. e-courses b. e-learning modules	**50**
3.	Digitization of number of: a. Ph. D. Theses b. Historical publications	
4.	Enhanced Knowledge Sharing and public Awareness activities carried out	**25**
5.	Development of linkages with a. National organisations b. International organisations	**3** **4**
6	Increase in number of linkages formed with KVKs and Community Information Centres	

7.	No. of articles downloaded from CeRA subscribed publishers	
8.	Training of critical mass (no. of experts trained)	**159**
9.	Number of scientists trained overseas in the frontier areas of science	**-**
10	Number of mass communication campaigns launched by media type (TV, radio, print, email, web)	**1**
11.	Number of scientists trained overseas in consortium-based subject areas	**-**
12.	Number of novel tools / protocols / methodologies developed for research	**-**
13.	**Publications**	
	Number of peer-reviewed research papers published in high impact International journals based on NAIP research **(NAAS Rating >6 only)**	
	Other journals	
	Book	**1**
	Book Chapter	
	Thesis	
	Popular Article (English)	
	Popular article in other Language	
	Newspaper Article	
	Seminar/Symposium/Conference/ Workshop Presentation	**1**
	Seminar/Symposium/Conference/ Workshop Proceedings	
	Technical Bulletin	
	Manual	
	Seminar/Symposium/Conference/ Workshop Presentation	**1**
	CDs/Videos	**4000, 5 HDD**
	Popular article in other Language	
	Folder/Leaflet/Handout	
	Report	
	Success stories	
14	Increase in number of queries responded to from public, private organizations and NGOs per month	**-**

15	Total Number of applications for patents and licenses	**-**
16	Number of weeks for the procurement cycle of high thresholds goods	

17. Employment Generation (man-days/year)

Does not apply

18. Assets Generated

(Details to be given on equipments and works undertaken in the sub-project, costing more than ` 10,000/- in each case)

(i) Equipment

Sl. No.	NAME OF ITEMS PURCHASED	VALUE OF PURCHASE	DATE OF PURCHASE
1.	High Definition Handycam – 1 no. 3 Mega Pixel DV Handycam 3ccd – 1 no Digital Camera 10 Megapixel – 2 nos.	2,11,500	31.03.08
2.	Database - 1U rack server with LMS – 1 no.	4,89,996	31.03.08
3.	Webserver - 1U rack server – 1 no.	4,79,960	31.03.08
4.	Notebook PC – 1 no.	61,880	31.03.08
5.	PC workstation – 10 nos.	4,89,840	31.03.08
6.	Network Color Laser Printer – 1 no Drum + Flatbed Scanner – 2 no	3,56,158	31.03.08
7.	CD/DVD Mass Duplicator 1+7 – 1 no.	94,120	31.03.08
8.	Final cut Studio – 1 no. AVID Xpress Pro – 1 no. Accordent PresenterPlus – 1 no.	2,40,760	31.03.08
9.	MACPRO workstation – 1 no. WINDOWS workstation – 1 no.	4,86,720	31.03.08

eContent PostProduction Workstation

(ii) Works

S. No.	Particulars of the Work, Name and Address of Agency Awarded the Work	Year of Work Done	Quantity (Nos.)	Total Cost (`)	Responsible Partner
	NIL				

(iii) Revenue Generated

(Details may be given on revenue generated in the sub-project viz., sale of seeds, farm produce, products, patents, commercialization, training, etc.)

S. No.	Source of Revenue	Year	Total amount (`)	Responsible Partner
	Not applicable			

(iv) Livestock

S. No.	Details of Livestock (Breed, etc.)	Year of Procurement/ Production	Nos.	Total Cost (`)	Responsible Partner
	Not applicable				

19. Awards and Recognitions

Honour and Awards related to outcome of sub-project

Name of personnel	Honour/Award (with date)
R.Venkatachalam, PI-part of the team in AgrisNet (TNAU Agritech Portal) of Dept.Agriculture, Govt. of TN	Gold Icon Award for Specific Sectoral Award - Agriculture by Govt. Of India National Award for e-Governance 2010-11

20. Steps Undertaken for Post NAIP Sustainability

The project could be sustained by linkages with government, national and international partnerships.

i) Developing eCourseware for Virtual Training Program of MANAGE, Hyderabad, including portal development.

ii) Liaison with Agricultural Innovation Partnership (AIP) program of USAID & Govt. of India for replicating eLearning initiatives of TNAU to SAUs of Eastern UP, Assam Agricultural University.

iii) Partnering with IFFRI, Washington for creation of Agricultural Knowledge Management Portal: http:// www.advanceagripractice.in.

iv) Partnering with state government to develop eContent for eExtension, Crop doctor-visual diagnostic application.

v) Partnering with TNAU ODL Program in the B.F.Tech degree program offered to farmers and public.

vi) eLearning initiatives of TNAU helped in developing the largest Agricultural Knowledgebase i.e., Agritech Portal (hhtp:// agritech.tnau.ac.in) created through funding from state

government. This portal has more than 4.5 lakh documents as text, image, audio, video and growing. The portal received more than 15 lakh unique visitors and getting 5000 unique visitors every day.

21. Possible Future Line of Work

Class+content streaming video lectures have potential for commercialisation following the lines of MOOCs (Massively Online Open Courseware) like Coursera, edX, Udacity which have more than 6.0 million course registrations. Besides, the econtent could be used in ODL programs of SAUs. Besides, using developed eContent, eBooks and iTextBooks could be created.

22. Personnel

(Staff of Lead Centre & Partner-wise, their Name, Designation, Discipline and Duration)

	From – To (DD/MM/YYYY)
Research Management (CL)	
1. Prof. R.Venkatachalam, PI	**From 31 Oct 2007 to 31.03.2014**
Scientific (CPI, CCPI, others)	
4. Dr. K.Ilamurugu, CoPI	**From 31 Oct 2007 to 31.03.2014**
5. Dr.K.Vanangamudi, CoPI	**From 31 Oct 2007 to 31.08.2013**
6. Dr.N.Anandaraja	**-do-**
Technical	
7. 2 RA , 6 SRFs and 3 DEOs	**Since inception of the project**

Sl.No	**Name and Designation**	**Working period**
1	C.Kavitha, RA	1.1.2008 to 31.12.2009
2	D.Vidya, SRF	1.1.2008 to 31.12.2009
3	T.Vijaya, SRF	1.1.2008 to 31.3.2012

4	R.Vigneswari, SRF	1.1.2008 to 31.3.2010
5	R.Gandhimathi, DEO	1.1.2008 to 31.3.2010
6	K.Vasanthi, DEO	1.1.2008 to 31.3.2010
7	S.K.Mohana Jayam, DEO	1.1.2008 to 31.3.2011
8	K.Rajasundari, SRF	1.2.2008 to 30.8.2009
9	M.Shanmugapriya, SRF	1.1.2008 to 31.3.2010
10	K.Sathiya, SRF	1.2.2008 to 30.8.2009
11	K.Ramah, SRF	1.2.2008 to 31.12.2009

23. Governance, Management, Implementation and Coordination

A. Composition of the various committees (CIC, CAC, CMU, etc.)

S. No.	Committee Name	Chairman (From-To)	Members (From-To)
1.	**CIC**	**Does Not Apply**	
2.	**CAC**	**Does Not Apply**	
3.	**CMU**	**Does Not Apply**	

A. List of Meetings organized (CIC, CAC, CMU, etc.)

S. No.	Details of the meeting	Date	Place & Address (Where meeting was organized)
1.	**CIC**	**Does Not Apply**	

2.	**CAC**	**Does Not Apply**	
3.	**CMU**	**Does Not Apply**	

Part III - Budget Utilization

Year	Receipt			Expenditure						
	Receipt / Grant received	Bank Interest	Total	contractual service	Workshop / Seminar	TA	Other operation and maintenance	Institutional	Non-Recurring	Total
2007-2008	4072000	0	**4072000**	355617	3170	0	460000	194000	2905000	**3917787**
2008-2009	4330696	28970	**4359666**	1772950	0	32540	1072279	365000	0	**3242769**
2009-2010	2541565	26743	**2568308**	1473811	0	72875	710669	250000	0	**2507355**
2010-2011	2567155	48167	**2615322**	0	36000	75088	26407	0	0	**137495**
2011-2012	988623	85979	**1074602**	0	0	111462	15442	0	0	**126904**
2012-2013	990000	66430	**1056430**	0	0	7662	54723	184600	0	**246985**
Refunded 31.3.2013			**0**							**4795340**
2013-2014	0	36745	**36745**	0	0	24751	515730	0	0	**540481**
Total	**15490039**	**293034**	**15783073**	**3602378**	**39170**	**324378**	**2855250**	**993600**	**2905000**	**15515116**
Budget Sanction				**3136460**	**1036000**	**1085650**	**2300000**	**176320**	**2905000**	**17968000**

R.Venkatachalam
PI

PART-IV: DECLARATION

This is to certify that the final report of the Sub-project has been submitted in full consultation with the consortium partners in accordance with the approved objectives and technical programme and the relevant records, note books; materials are available for the same.

Place: Coimbatore-3_

Date:31.03.2014_

R.Venkatachalam
Signature of Principal Investigator

K.Ilamurugu
Signature of Co-Principal Investigator
Date:

Comments & Signature of Consortium Leader

Date: