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SKILL ORIENTED CERTIFICATION & VALUE-ADDITION COURSES FOR EMPLOYABILITY, SUSTAINABILITY & LIFELONG LEARNING

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RESEARCH ARTICLE

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Abstract

The end product or fruit of any education is employability- be it Govt. Job, Corporate Sector, Start-up, Business or higher studies. However, the individual's ability to get employability is largely determined by the conditions of the job market than individual's capabilities. Today's Corporate & global world needs individuals who are digitally smart and up skilled. Mere core domain subject knowledge/degree will not help them survive in the competitive environment. Multitalented and multitasking individuals only can manage the multifaceted jobs. Here in lies the dire need for Skill Oriented Certification & Value-addition courses. In line with Skill India Campaign, the present paper emphasizes the need for skill-oriented certification courses which not only create opportunities for employment but also help in achieving sustainable environment and a lifelong learning. The paper discusses the skill-oriented certification courses such as nursery, roof-top gardening, food processing and packaging, organic farming, livestock management, dairying, ice-cream and confectionery making. The students in the field of environmental science and agriculture can do these certification courses in addition to their regular courses. In addition, there are a few certification courses which are common for all streams such as digital marketing, designing and animation, project management and reporting, laboratory management, international trading etc. This paper tries to address issues such as what is the need for Certificate & Value-addition courses? How can we arrange resources and funding for certification courses? How can we design these certification courses? When should we start these value-addition courses?

Keywords: *Employability, Sustainability, Value-addition Courses*

Introduction

India boasts the third largest higher education system in the world, following the United States and China. Renowned institutions like the Indian Institute of Technology, Indian Institute of Information Technology, and National Institute of Technology are recognized as premier institutes for science and engineering, receiving global recognition for their educational standards and knowledge excellence. According to Asia Week, six Indian Institutes of Technology are ranked among the top 20 science and technology universities in Asia. These Institutes have produced exceptional engineers at the undergraduate level and have established a highly esteemed reputation for India on the international stage.

In spite of the increasing global demand, India's top institutes are facing challenges with the unemployment rates among their graduate students. The National Association of Software and Services Companies (NASSCOM) reports that merely 25% of graduate engineers are considered employable. The rise in the number of unemployed engineers in India has been linked to their inadequate and limited communication and employability skills.

The findings from Rajsekaran and Rajasingh (2009) highlight the importance of closing the gap in perception between industry and academia to increase student employability and elevate the standards of higher education. According to Lowden et al. (2011), soft skills encompass a variety of broader capabilities and traits, such as teamwork, communication, leadership, critical thinking, problem-solving, and managerial skills. The UK Commission for Employment and Skills (2009) asserts that soft skills should not be seen as a replacement for specific knowledge and technical abilities, but rather as elements that can distinguish someone who is knowledgeable in a field from someone who excels in performing job-related tasks.

Rao (2010) argues that "The existing Indian education system places excessive emphasis on facts and figures, which fails to nurture creativity, analytical thinking, and reasoning abilities in children." Paliwal (2009) has highlighted the necessity of collaboration between academia, industry, and government efforts. In a related study, Knell, Oakley, and O'Leary (2007)

underscored that employers are consistently seeking a workforce that possesses strong creativity, communication abilities, and cultural awareness. Blom and Saeki (2011) examined the skills gap among Indian engineers through a 2009 employer survey. The research categorized skills into three groups: core employability skills, communication skills, and professional skills.

The purpose of education is to-make students employable, prepare students for job market as per industry demands, up-skill them beyond educating the students in core subjects and prepare students for globalized world. How do we make students employable/industry ready? There are a number of factors contributing to employment in any field. These are Effective Communication Skills, Skill Oriented Certification and Value- added Courses, Corporate Connect Programs, Career Counseling Sessions, and Computer Skills. Along with effective communication skills, we need to train our students in at least two foreign languages as the multinational companies (MNCs) run international business and have foreign customers and clients. Further, with e-commerce and digitalization of services, professional knowledge of computer programing, data management, designing and digital marketing is required.

Today's Corporate & global world needs students who are digitally smart and up-skilled. Mere core domain subject knowledge/degree will not help them survive in the competitive environment. Multitalented and multitasking individuals only can manage the multifaceted jobs. Here in lies the dire need for Skill Oriented training programs. Launching the 'Skill India' Mission on 15th July 2015, Prime Minister Narendra Modi said that India can emerge as the 'human resource capital' of the world if the capabilities of the young men are honed through proper and dynamic training in skills. The government implemented its skill development scheme, Pradhan Mantri Kaushal Vikas Yojana (PMKVY), signifying 'Kaushal Bharat, Kushal Bharat' (Skilled India, Successful India).

Certification and value addition courses are structured programs designed to enhance specific skills and knowledge in a particular field. They are typically shorter than traditional degree programs and focus on practical, job-related competencies. These courses can be pursued through various platforms, including universities, professional organizations, and online learning platforms. These skills-oriented courses give an upper edge to the students and empower them.

Impact on Placement

1. **Enhanced Employability**
   Earning certifications demonstrates a commitment to professional development and mastery of industry-relevant skills, making candidates more attractive to employers. For instance, a study by the University of Virginia highlights that professional certificates allow individuals to learn skills and knowledge that can be applied immediately in their current roles, aiding long-term career progression.
2. **Alignment with Industry Needs**
   Certification programs are often developed in collaboration with industry experts, ensuring that the curriculum aligns with current job market demands. This alignment helps bridge the skills gap, making certified individuals more competitive in the job market. The Evolution notes that certification and degree pathways offer a scalable approach to align degree programs with industry needs, providing students with both analytical and technical skills.
3. **Increased Job Opportunities**
   Holding relevant certifications can open doors to a wider range of job opportunities, as many employers prefer or require specific certifications for certain positions. According to Indeed, most industries have some form of certification that can increase chances of higher pay, better job prospects, and new career opportunities.
4. **Demonstrated Commitment to Learning**
   Pursuing additional certifications showcases a proactive approach to learning and professional growth, qualities that are highly valued by employers. The Southern New Hampshire University points out that students use college certificates to add weight to their resumes, demonstrate their commitment to learning, and showcase their job-related knowledge and skills to hiring managers.
5. **Potential for Higher Earnings**
   Certified professionals often command higher salaries compared to their non-certified counterparts, as certifications can be indicative of specialized expertise and a higher level of competence. The American Association of Colleges and Schools notes that certification programs in high-demand areas fill the skills gaps that corporations face, while making graduates more employable.

Now the question arises that when should we start these certification and skills-oriented courses?

When to Start a Certification Course

To make the students more resourceful and employable from 1st year itself, we should introduce one certification course each semester. A student can upskill himself in 6-8 skill-oriented courses during the complete degree program and thus becomes job ready.

Start from general courses for all streams: In the first year, we can start with general courses which the students of all streams can do with ease such as Life Skills, Personality Development, Social Networking like LinkedIn Profile Building, designing & animation, essential IT skills, Plagiarism & Use of Turnitin, Project management and reporting.

These courses should be introduced during the Orientation program followed by an introductory session. After attending the introductory session of various courses, the students can opt for any course of their choice, We should start from basic & elementary level to advanced.

Resources for Certificate & Value Addition Courses

These certification courses should be done from recognized, reputed and government institutes. Holding recognized certifications demonstrates your commitment to professional development and adherence to industry standards. This can enhance your credibility with employers and peers, positioning you as a knowledgeable and reliable professional.

- Certified Agencies: ICT Academy, CETPA, CISCO
- Govt. National Organizations: NIPAM and TIFAC, National Institute of Securities Market (NISM), Charan Singh National Institute of Agricultural Marketing (NIAM)
- Premier Technical & Management Institutes: IIM Bangalore E-Cell, IIT Delhi Virtual e-labs
- MOUs under CSR (Corporate Social Responsibility): Internshala, Skill Academy by Testbook, Mobiloitte, Barclays, Rubbicon, GTT Foundation.

The following certification and value-addition courses are recommended for BTech, BCA, MBA, BBA & BSc in Agriculture:

Table 1: Certification Courses for All Streams

Sl. No.	Course	Stream
1.	Life Skills (under CSR organized by GTT Foundation Pune)	All streams
2.	Communication Skills (Rubicon Skill Development Pvt. Ltd.)	All streams
3.	Designing & Animation (Coreldraw & Photoshop)	All streams
4.	Essential IT Skills (Microsoft word, excel, power-point)	All streams
5.	Financial Education for Young Citizens	All streams
6.	Project Management and Reporting	All streams
7.	LinkedIn Profile Building (Workshop)	All streams
8.	Plagiarism & Use of Turnitin (Workshop)	All streams

Table 2: Certification Courses for BTech & BCA

Sl. No.	Course	Organization
1.	Cisco Cyber Security	CISCO
2.	Introduction to Android Development	CETPA
3.	Cloud Computing and Ethical Hacking	CETPA
4.	Data Analytics and Digital Twins in Energy Industry	Siemens Energy
5.	Certification Course on Artificial Intelligence & Machine Learning	BhuZIon Innovation Lab
6.	Certification Course on Web Development	In house faculty
7.	Certification Course on SAP	BhuZIon Innovation Lab
8.	Innovation, Incubation and Entrepreneurship	Mr. Amit Srivastava, Group Manager, HCL
9.	Entrepreneurship - The Myriad Saga & M3	Director FIIT, IIT Delhi
10.	Certification Course on IoT	BhuZIon Innovation Lab
11.	IPR Awareness Program	NIPAM and TIFAC
12.	How to Publish High Quality Research	Princess Nourah Bint Abdulrahman University, Saudi Arabia

Table 3: Certification Courses for MBA & BBA

Sl. No.	Course	Organization
1.	Tally ERP	Tally Sofware Solutions
2.	Digital Marketing	IIM Bangalore E-Cell
3.	Entrepreneurship	IIM Bangalore E-Cell
4.	Business Analytics	CETPA
5.	Financial Modelling	CETPA
6.	Capital Market Research	National Institute of Securities Market (NISM)

Table 4: Certification Courses for BSc in Agriculture

Sl. No.	Course	Stream
1.	Dairying	Agriculture Science
2.	Live Stock Management	Agriculture Science
3.	Nursery & Roof Top Gardening	Agriculture Science
4.	Organic Farming	Agriculture Science
5.	Laboratory Management	Agriculture Science
6.	Post-harvest Technology	Agriculture Science
7.	Bee Keeping	Agriculture Science
8.	Ice Cream & Confectionery Making	Agriculture Science
9.	International Trading	Agriculture Science
10.	Seed Production Technology	Agriculture Science
11.	Seed Processing and Grading	Agriculture Science
12.	Micro Irrigation	Agriculture Science
13.	Soil, Plant, Water and Fertilizer Analysis	Agriculture Science

How to Design a Certification Course?

These certification courses should be designed depending upon the need and level of students. Following the input-based approach in the beginning at basic level, the output practical and experimental based project can be handled at a later stage.
Artificial Intelligence and Machine Learning Course (Basic & Advanced)

• Course-AI&ML, Levels- Basic & Advanced, Course Duration: 2 Semesters

Table 5: Syllabus/topics to be covered in Semester-1 & Semester II

Sl. No.	Topics- Basic Level (Semester I)	Topics- Advanced Level (Semester II)
1.	What is Artificial Intelligence and Machine Learning?	Python Library: Numpy for Array Processing
2.	Differences from the normal programming	Python Library: Pandas for Data Frames
3.	Real Life Applications using AL ML	Practical for Computer Vision: Face Recognition from a picture
4.	Practical using AIML Apps like Google Translate, Captions etc.	Practical for Natural Language Processing: Sentiment Analysis of movie reviews
5.	Machine Learning Models	Practical for Regression: Old Car Sale Price prediction

6.	Training and Testing the Machines	Practical for Classification: Cancer Prediction in Patients
7.	Supervised vs Unsupervised Learning	Deep Learning Models: Decision Tree, Random Forests, SVM
8.	Algorithms and Patterns	Confusion Matrix and analysis
9.	Linear Regression	Support Vector Machines/ Neural Network
10.	Classification	Reinforcement Learning
11.	Clustering	Convolution Networks
12.	Computer Vision ML	Gradient Boosting and Learning Rate
13.	Natural Language Processing ML	Google AI Libraries/ Tensor Flow and Cloud Platform
14.	Introduction to Deep Learning/ Neural Networks	Practical Data Engineering Lab
15.	Practical of ML using Python (Anaconda/ Jupyter Notebook)	Practical of Deep Learning/ Neural Networks
16.	ML program on Github.com	Road ahead: Data Engineer, Data Scientist, Data Analyst, ML Ops

Certification Course on Internet of Things (Basic & Advanced)

• Course- Internet of Things (IoT), Levels- Basic & Advanced, Course Duration: 2 Semesters

Table 6: Syllabus/topics to be covered in Semester-1 & Semester II

Sl. No.	Topics- Basic Level (Semester I)	Topics- Advanced Level (Semester II)
1.	Introduction to IoT	IIoT Applications for the Industries
2.	Devices and Sensors in IoT	IoT/ IIoT Architecture
3.	Communication Protocols	Machine 2 Machine Communication
4.	IoT Programming	Practical IoT Project using Arduino
5.	IoT Cloud	Practical IoT Project using Raspberry
6.	Arduino hardware for IoT	Networking Protocols and Gateways
7.	Object Oriented Programming	Edge Computing in IIoT
8.	Programming in Arduino	RFID and Microcontrollers
9.	Practical in IoT using Arduino	Wearable devices and IoT
10.	Introduction to Raspberry hardware	Virtualization/ Digital Twin
11.	Programming Applications for Raspberry	APIs and MQTT
12.	Networking of IoT devices	NodeRED Software for Simulation of IoT Apps
13.	Low power IoT devices	AI ML and IoT/ IIoT Applications
14.	IoT for homes/ Smart Homes	Healthcare IoT Application
15.	IoT for Buildings/ Smart Buildings	Flood Control IoT Application Design
16.	IoT for Driverless Cars	Maintenance of Oil Rigs/ Pipelines using IIoT

Skills for Employability & Sustainability

Enhancing your skills through certificate and value addition courses in agriculture can significantly improve your employability and expertise in the field. These skills boost both employability & sustainability. Here are some notable programs:

Certificate in Organic Farming (COF) by IGNOU.

This program introduces students to organic farming practices and the marketing of organically raised products. It focuses on environmentally conscious and socially responsible farming methods. Duration: 6 months to 2 years. Fees: INR 4,800.
Diploma in Value Added Products from Fruits and Vegetables by IGNOU.

This diploma program covers the processing and value addition of fruits and vegetables, equipping students with skills to create value-added products. Few courses are available online and free of cost also. Duration: 1 year. Medium: English and Hindi.
Certificate Courses by Tamil Nadu Agricultural University (TNAU).

TNAU offers various certificate courses, including Landscaping and Ornamental Gardening, Organic Farming, Sericulture, Modern Irrigation Management, Waste Recycling and Vermi-composting, and Beekeeping. These courses are also offered in online and distance mode.

Value Added Courses by Paavai Engineering College

These courses include Agro-meteorology and Climate Change, Organic Agriculture, Basics of Farm Power and Machinery, Soil, Water and Plant Analysis, Hi-tech Horticulture, and Structure and Dynamics of Indian Agriculture.

Certificate Courses by Kerala Agricultural University (KAU)

KAU offers courses such as Fruits and Vegetables Processing, Operation and Maintenance of Farm Machinery, Micro Irrigation Technician, Precision Farming, Data Science with R software, and Entrepreneurship Development in Food Processing. These programs are designed to provide practical knowledge and skills, enhancing your qualifications and employability in the agriculture sector.

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References

1. Blom, A. & Saeki. H. (2011). Employability and Skill Set of Newly Graduated Engineers in India. Policy Research Working Paper 5640, World Bank. *https://openknowledge.worldbank.org/entities/publication/72f9fd01-104b-51d8-958d-5a1e216a4d18*
2. B. Rajasekaran, S. Rajasingh (April 2009). Perceptual chasm between industry and academic leaders on the quality of higher education, *Journal of academic leadership, USA, Vol 7.* DOI:10.58809/MSVG6384
3. Knell, J., Oakley, K., & O'Leary, D. (2007). Confronting the skills paradox: maximizing human potential in a 21st century economy. Retrieved from *https://www.demos.co.uk/*
4. Lowden K., Hall S., Elliot D., & Lewin J. (2011). Employers' perceptions of the employability skills of new graduates. Retrieved from Edge Foundation 2011 website: http://www.edge.co.uk/media/63412/employability_skills_as_pdf_-_final_online_version.pdf Google Scholar
5. Martin, Carole (2008). How to stand out from a Crowd of Candidates. http://www.career_intellegence.com/Transcation/uniqueness.asp accessed on November 25, 2017.
6. Paliwal Udailal (Mar 2009). Educated youth and unemployment in Ethopia, *The Indian journal of commerce, 62*(1). https://icaindia.info/download/Indian-Journal-of-Commerce-January-March-2009.pdf
7. Rao, M. S. (2010). Soft skills: Enhancing employability: Connecting campus with corporate. New Delhi, India: I. K. International Publishing House