



**AMRITA**  
VISHWA VIDYAPEETHAM

# MIELES PROJECT UPDATE

## INSTITUTIONALIZING E-LEARNING AT AMRITA

Dr. Krishnashree Achuthan  
Dean Post Graduate Programs  
January 9, 2020

# SUMMARY

2017-2019 – Amrita's E-learning  
Landscape

Policy Level Changes

Adoption of MOOC Curricula

Dissemination and Outreach Activities

# AMRITA VISHWA VIDYAPEETHAM

## E-LEARNING LANDSCAPE

Amrita Center for E-learning

Platforms for connecting teachers to students (www.AVIEW.in)

4300 Experiments through Virtual Laboratories for Higher Education with 350+ experiments contributed by Amrita



### Amrita's Virtual Labs Project Receives the 2018 GOLC Online Lab Award

Monday, March 26, 2018 - 16:16



On March 23, 2018, Amrita's Virtual Laboratories and its deployment outcomes won the GOLC Online Lab Award 2018 for visualized experiment category. The nomination was titled "vlab - Sustainable Laboratory Skill Education through Free Online Labs and Connecting Teachers and Students across the Country" and recognizes the efforts in deploying free educational tools and promoting its outreach across students, professors and institutions and included Dr. Shyam Diwakar, the Institute Integration Coordinator of Amrita Virtual Labs; Dr. Krishnashree Achuthan, the Principal Investigator of the project; Dr. Bipin Nair, the Discipline-wise National Coordinator of Biotechnology and Biomedical Engineering Virtual Labs for the National Mission Project; Dr. Prema Nedungadi, Director of AmritaCREATE and Dr. Raghu Raman, Chairman, Amrita School of Business, Coimbatore, who had

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# AN E-LEARNING LANDSCAPE

Center for Research in Advanced Technologies for Education

Amrita – CBSE (Central Board of Secondary Education) has initiated Amrita's Olabs in 2000+ CBSE schools across the country



At the Governance Day, Shri Ravi Shankar Prasad, Minister of Communications and Information Technology, awarded Prof. Prema Nedungadi, Amrita Vishwa Vidyapeetham, and Dr. Sasikumar, CDAC Mumbai, with certificates of recognition for the nationwide rollout of Online Labs for School Experiments.

## 2019 X-Prize Finalist Award for Digital Literacy

PRIZES VISIONEERING IMPACT ROADMAPS ABOUT US

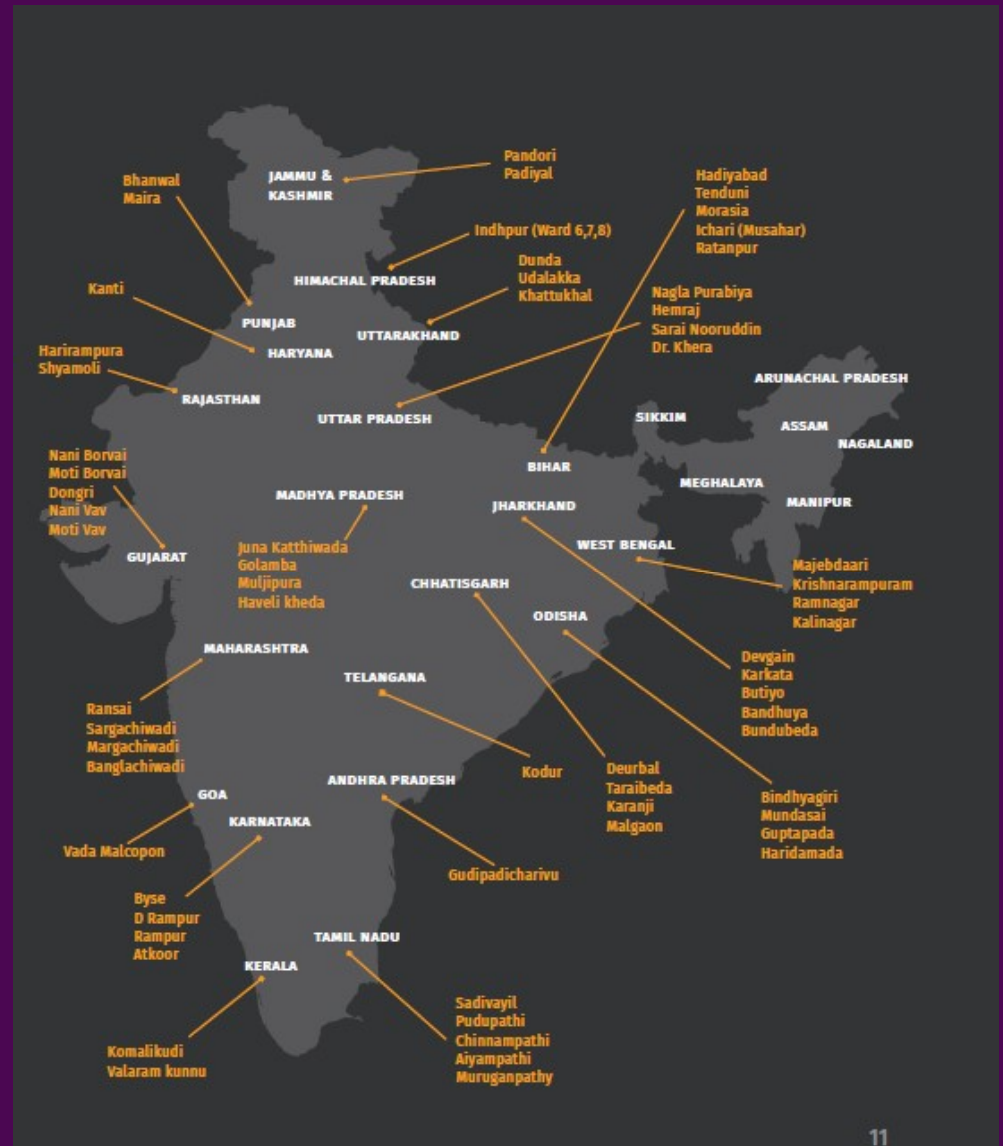
← BARBARA BUSH FOUNDATION ADULT LITERACY XPRIZE DOLLAR GENERAL LITERACY FOUNDATION

Amrita Learning

AmritaCRE

Amritapuri, KL, In

er for Human-Computer Interactions  
ocational Education to communities  
UNESCO Chair granted in 2017 for Gender  
quality and Women's Empowerment



## Agreement - Integrating MOOCs into KTH-Amrita Agreement

Cooperative academic program (CAP) Dual Degree - 3+2 Program



### Added Systems

#### Special requirements

Digital Design basics

Computer hardware organization basics

Electric Circuits Theory

#### Ess Systems

#### Special requirements

Signals and systems, including material about time-continuous

and time-discrete systems,

sampling, linear filters and systems, and transform methods.

#### Systems Control & Robotics

#### Special requirements

Signals and systems including material about time-continuous

and time-discrete

systems, sampling, linear filters and systems and transform

methods

Control engineering.

### MOOC courses that can be integrated:

- Control Engineering
- Fundamentals of electronic materials and devices
- Dynamical systems and control
- Antennas
- Digital Electronic Systems
- Modern Digital Communication Techniques

# COURSE INTEGRATION OF MIELES MOOC COURSES IN AMRITA'S CURRICULUM



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## ML Course

M.Tech course in Machine Learning

Advanced Elective in Undergraduate Artificial Intelligence curricula (AI)

## Electromagnetic Compatibility

B.Tech (Undergraduate) Electro Magnetic Theory Course of Electrical and Electronics Engineering Program (EEE)

## How can we build VLs across these courses

Discussion with



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Ph.D. Program

(Doctor of Philosophy)

University Level Regulations

## 6. COURSEWORK

The course-work for a doctoral student is proposed by the Thesis Advisor, taking into account the student's background and preparation. The proposed course-work must be endorsed by the Doctoral Committee.

Minimum number of course credits is as follows:

- For students who have completed eight years or more of UG+PG (not including any extra time in clearing arrears, counting only the standard duration of respective UG & PG degrees) – 8 course credits
- For students who have completed six to seven years of UG + PG (not including any extra time in clearing arrears, counting only the standard duration of respective UG & PG degrees) – 12 course credits
- For students who have completed five years of UG + PG (not including any extra time in clearing arrears, counting only the standard duration of respective UG & PG degrees) – 16 course credits
- For students who have completed four years of UG (not including any extra time in clearing arrears, counting only the standard duration of respective UG degrees) – 21 course credits

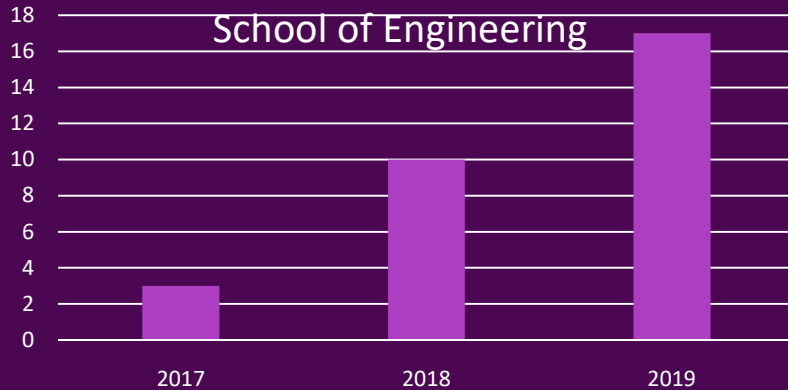
Maximum of 50% of a student's coursework may consist of transfer courses/ MOOC courses.



# GROWTH OF USE OF MOOC COURSES AT AMRITA



Number of MOOC Courses



Policy Level Change

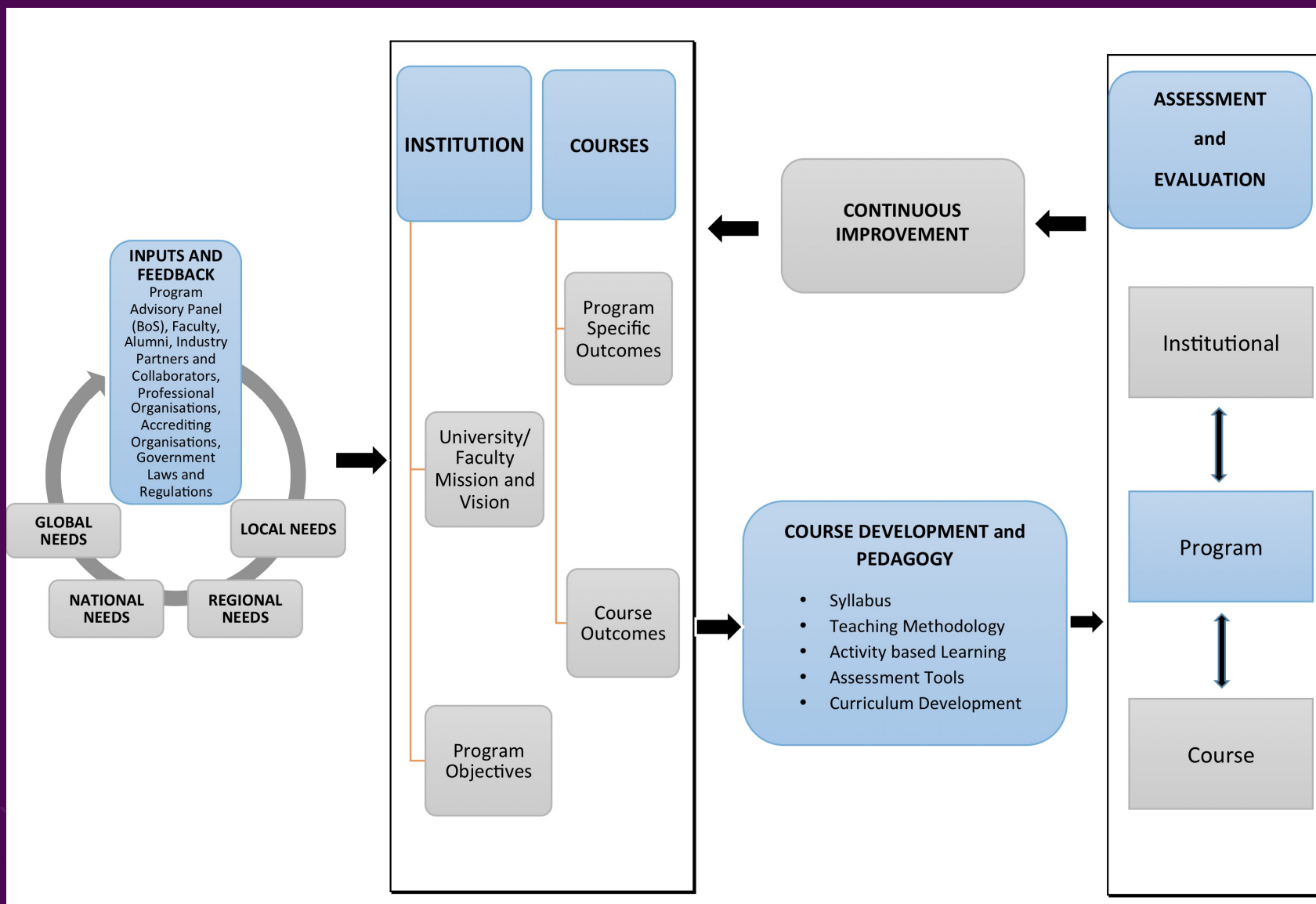
Increase in Blended Mode Contexts

Analysing Specific Outcomes

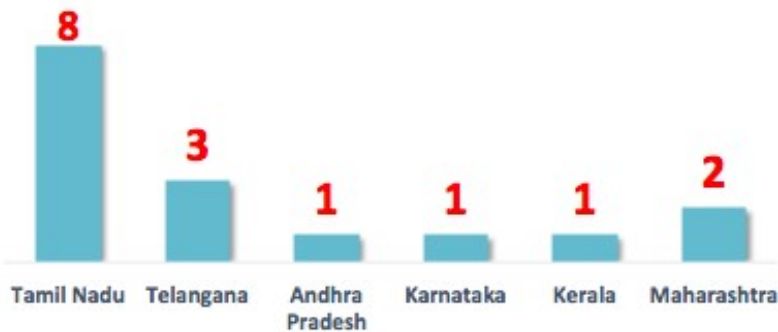
- Engineering and Fracture Mechanics
- Introduction to Remote Sensing
- Principles of Casting Technology
- Introduction to Modern Application Development
- Bio Metrics: Prof. Phalguni Gupta IIT Kanpur, NPTEL
- English Language for Competitive Exams -
- Emotional Intelligence- Rabindra Kumar
- Qualitative Research Methods and Research Writing-
- Machine Learning BY ANDREWNg\*
- Mathematical Modelling For Manufacturing
- E-Business
- Introduction to IoT
- Practical Machine Learning with Tensor Flow
- Introduction to Deep Learning
- Digital Image Processing
- IBM Artificial Intelligence Professional Certificate
- Advanced composites in engineering structures
- Design of Photo voltaic Systems
- Advanced Concepts in Fluid Mechanics
- Cloud Computing
- Semiconductor Devices and Circuits
- Risk and Reliability of Offshore Structures
- Comprehensive Disaster Risk Management Framework
- Mathematical Methods in Signal Processing
- SDNFV Framework for Securing Cloud/Edge Networks
- Applied Deep Learning
- Introduction to Wireless and Cellular Communications
- Applied Natural Language Processing
- Digital Signal Processing
- Industrial Automation and Control
- Artificial Intelligence: Knowledge Representation and Reasoning
- Technical Communication



# ALYSING PROGRAM & COURSE OUTCOMES

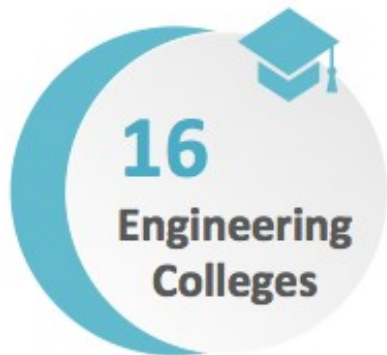


## Nodal Centers (2018)



**69%**  
Urban

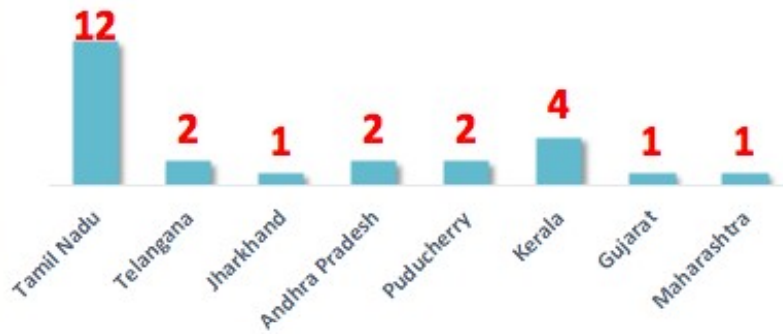
**31%**  
Rural



- Silver Jubilee Government College, Andhra Pradesh
- Sahrdaya College of Engineering and Technology, Kerala
- Atria Institute of Technology, Karnataka
- Dr. D. Y. Patil Institute of Engineering, Management and Research, Maharashtra
- Prof. Ramkrishna More Arts, Commerce and Science College, Maharashtra
- Keshav Memorial Institute of Commerce and Sciences, Telangana
- Kommuri Pratap Reddy Institute of Technology, Telangana
- St. Pious X Degree & PG College For Women, Telangana
- Francis Xavier Engineering College, Tamil Nadu
- Hindusthan Institute of Technology, Tamil Nadu
- Karpagam College of Engineering, Tamil Nadu
- Kings Engineering College, Tamil Nadu
- P. T. Lee Chenaalvaraya Naicker College of Engineering and Technology, Tamil Nadu
- Priyadarshini Engineering College, Tamil Nadu
- SCAD Institute of Technology, Tamil Nadu
- Sri Krishna College of Technology, Tamil Nadu

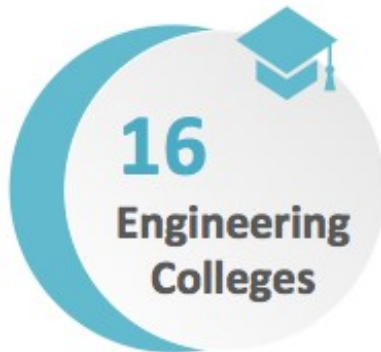


## Nodal Centers (2019)



64%  
Urban

36%  
Rural



- Adithya Institute of Technology, Tamil Nadu
- AMET University, Tamil Nadu
- Anna University Regional Campus, Tamil Nadu
- AV College of Arts, Science and Commerce, Telangana
- Ayya Nadar Janaki Ammal College, Tamil Nadu
- BJR Government Degree College, Telangana
- Cambridge Institute of Technology, Jharkhand
- Gayatri Vidya Parishad College of Engineering, Andhra Pradesh
- IFET College of Engineering, Tamil Nadu
- Loyola ICAM College of Engineering and Technology, Tamil Nadu
- Manakula Vinayagar Institute of Technology, Puducherry
- Muthayammal Engineering College, Tamil Nadu
- N S S College, Nilamel, Kerala
- Pramukh Swami Science and H D Patel Arts College, Gujarat
- PVKK Institute of Technology, Andhra Pradesh
- S.A. Engineering College, Tamil Nadu
- Shri Shivaji Science College, Maharashtra
- SNS College of Engineering, Tamil Nadu
- Sree Chitra Thirunal College of Engineering, Kerala
- Sri Manakula Vinayagar Engineering College, Puducherry
- SRM TRP Engineering College, Tamil Nadu
- St. Mary's College, Kerala
- Theivanaiammal College for Women, Tamil Nadu
- Velammal College of Engineering & Technology, Tamil Nadu
- Vimal Jyothi Engineering College, Kerala