NATIONAL FREE WEBINAR ON

QUALITY ENHANCEMENT IN HIGHER EDUCATION INSTITUTIONS

Mar Baselios Institute of Technology and Science
Nellimattom, Kothamangalam, Ernakulam, Kerala - 686 693, India
(ACCREDITED BY NAAC)

Sponsored by

National Assessment and Accreditation Council
An Autonomous Institution of the University Grants Commission
राष्ट्रीय मूल्यांकन एवं प्रत्यायन परिषद्
विश्वविद्यालय अनुदान आयोग का स्वायत्त संस्थान

Conducted by

Internal Quality Assurance Cell (IQAC), MBITS

10th & 11th December, 2020

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Abstract of the Webinar

The National Webinar on **"Quality Enhancement in Higher Education Institutions"** was conducted as per the schedule on 10th & 11th of December 2020. The program was coordinated by the Internal Quality Assurance Cell (IQAC) of MBITS, Nellimattom, Kothamangalam, Kerala. The Webinar was sponsored by **'National Assessment and Accreditation Council (NAAC)'**, which helped to elevate the webinar to a higher extent.

The inauguration of the webinar was done by the Chief Guest of the 1st day (10th December 2020), Dr. Buddha Chandrasekhar, Chief Coordinating Officer, AICTE, New Delhi, Ministry of Human Resource Development, Government of India, followed by his technical talk on *"Roadmap to Industry 4.0 through Education 4.0"*. The Guest of Honour of the 1st day was Dr. M. S. Shyamasundar, Advisor, Southern Region Coordinator, NAAC, Bengaluru. During his session he discussed the topic *"Quality Enhancement through Institutional Ranking"*. The Keynote Speaker of the 1st day was Prof. Dr. Jagathy Raj V. P., Professor, Cochin University of Science and Technology (CUSAT), Kerala. His talk was on the topic *"Research-Thrust for Quality in Higher Education Institutions"*.

The Chief Guest of the 2nd day (11th December 2020) was Prof. Dr. M. P. Poonia, Vice Chairman, AICTE, New Delhi. His talk was on the topic *"Institutional Best Practices and New Education Policy"*. The Guest of Honour of the 2nd day was Dr. B. S. Madukar, Formerly Adviser and GC/EC member, NAAC and Founder Director, University of Mumbai, Quality Assurance Cell. During his session he discussed the topic *"Standards and Innovative Mechanisms for Assuring Quality in Teaching-Learning Process"*. The Keynote Speaker of the 2nd day was Mr. Arunjith Unnikrishnan, Assistant Director (HR), Ernst & Young (EY), Kochi, Kerala. His talk was on the topic *"Skilling and Employability"*.

The webinar was conducted on the two days from 10.00 am to 12.30 pm streaming through the online platforms ZOOM and Facebook live. The panel discussion and the question answering session were conducted after each technical talk. The panel was headed by Dr. P. Sojan Lal whose has been the pillar of support for organizing and conducting such a big event in this pandemic situation.

A total of 714 participants including academicians, professionals, students and research scholars attended the webinar from different states in India. The participants were represented from 104 different institutions. The Feedback form link was shared at the end of sessions on the two days and recorded the attendance of participants through their responses. Participation Certificates were mailed to all the participants.

The national webinar as a whole was well organized and conducted in an excellent manner as per the feedback from the panel members and participants. This was possible with the support of management, principal, administrative department, IQAC members and cooperation of all the faculty & students of MBITS.

Theme of the Webinar

The theme of the webinar is 'Quality Enhancement in Higher Education Institutions'. Higher Education should impart in-depth knowledge and understanding so as to advance the students to new frontiers of knowledge in different walks of life. The seminar focuses on the reasons to worry on quality and the various factors affecting the quality of the higher education. It aims to equip the HEIs to enhance the quality to ensure their milestones in this competing world and to prepare for National and International assessments and rankings.

The sub themes of the webinar are:

1. Roadmap to Industry 4.0 through Education 4.0
2. Quality Enhancement through Institutional Ranking
3. Research- Thrust for Quality in Higher Education Institutions
4. Institutional Best Practices and New Education Policy
5. Standards and Innovative Mechanisms for Assuring Quality in Teaching-Learning Process
6. Skilling and Employability

Mar Baselios Institute of Technology and Science

Nellimattom, Kothamangalam, Ernakulam, Kerala, India

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"Quality Enhancement in Higher Education Institutions"

Sponsored by National Assessment and Accreditation Council (NAAC)

Conducted by Internal Quality Assurance Cell (IQAC), MBITS

Programme Schedule (Detailed)

Day 1/2: 10/12/2020, Thursday, 10 am to 12.30 pm, IST

10th December 2020 (Thursday)

Program	Name	Compering	Questions from Zoom	Questions from Facebook
Prayer (Silent Prayer) (Time : 10 AM)		Susanna M Santhosh		
Inviting Principal (Time : 10 AM)		Renu Mary George		
Welcome Speech (Time : 10 AM)	Dr. P Sojan Lal (Principal MBITS)	Susanna M Santhosh		
Introduction of inauguration and chief guest along with his talk Talk on "Roadmap to Industry 4.0 through Education 4.0" (Time : 10.05 AM) (Take 45 min. for his talk)	Dr. Buddha Chandrasekhar, (Chief Coordinating Officer, AICTE, New Delhi, Ministry of Human Resource Development, Government of India)	Renu Mary George	Susanna M Santhosh, Renu Mary George (Collect questions from zoom)	Soumya Markose Lincy P Alias (Collect questions from facebook & forward to Susanna & Renu through what's app)
Discussions preferred (You can ask questions)	,,	Renu Mary George (Ask relevant question & say thanks for such an informative talk)		

Introduction of our Guest of Honour along with his talk Talk on "Quality Enhancement through Institutional Ranking" (Time : 10.45 AM) (only take 30 min. for his talk)	Dr. M. S Shyamasundar, (Advisor, Southern Region Coordinator, NAAC, Bengaluru)	Susanna M Santhosh	Renu Mary George Susanna M Santhosh, (Collect questions from zoom)	Soumya Markose Lincy P Alias (Collect questions from facebook & forward to Susanna & Renu through what's app)
No discussions preferred (Anyway you can ask Would you like to take one or two questions sir?)	‘’	Susanna M Santhosh (Ask questions if any at least ask one relevant question if sir is willing to take it otherwise say thanks for such an informative talk)		
Introduction of our Keynote Speaker along with his talk Talk on " Research- Thrust for quality in Higher Education Institutions " (Time : 11.15 AM) (Take 30 - 45 min. for his talk)	Prof. Dr. Jagathy Raj V.P, (Professor, CUSAT, Kerala)	Renu Mary George	Susanna M Santhosh, Renu Mary George (Collect questions from zoom)	Soumya Markose Lincy P Alias (Collect questions from facebook & forward to Susanna & Renu through what's app)
Discussions preferred (You can ask questions)	‘’	Renu Mary George (After discussion say thanks for such an informative talk)		
Share feedback link				
Inviting Solly Miss for Vote of Thanks		Susanna M Santhosh		
Vote of Thanks (Time : 12.15 PM)	Dr. Solly George (Prof. & Dean Planning & Development MBITS, IQAC Coordinator MBITS)	Susanna M Santhosh (After vote of thanks conclude the session along with tomorrows schedule or handover to principal)		

Day 2/2: 11/12/2020, Friday, 10am to 12.30pm, IST

11th December 2020 (Friday)

Program	Name	Compering	Questions from Zoom	Questions from Facebook
Welcome Speech (Time : 10 AM)	Dr. P Sojan Lal (Principal MBITS)	Bonia Jose		
Introduction of chief guest along with his talk Talk on "Institutional Best Practices and New Education Policy" (Time : 10 AM) (Only take 20 min. for his talk)	Prof. Dr. M.P Poonia (Vice Chairman, AICTE, New Delhi)	Bonia Jose	Deepthy Varkey, Bonia Jose (Collect questions from zoom)	Soumya Markose Lincy P Alias (Collect questions from facebook & forward to Susanna & Renu through what's app)
No discussions preferred (Anyway you can ask Would you like to take one or two questions sir?)	"	Bonia Jose (Ask questions if any at least ask one relevant question if sir is willing to take it otherwise say thanks for such an informative talk)		
Introduction of our Guest of Honour along with his talk Talk on "Standards and Innovative Mechanisms for Assuring Quality in Teaching-Learning Process " (Time : 10.30 AM) (only take 45 min. for his talk)	Dr. B.S Madukar, (Formerly Adviser and GC/EC member, NAAC and Founder Director, University of Mumbai, Quality Assurance Cell)	Deepthy Varkey	Bonia Jose, Deepthy Varkey (Collect questions from zoom)	Soumya Markose Lincy P Alias (Collect questions from facebook & forward to Susanna & Renu through what's app)
Discussions preferred (Ask questions)	"	Deepthy Varkey (Ask relevant question & say thanks for such an informative talk)		

Introduction of our Keynote Speaker along with his talk Talk on " Skilling and Employability " by Keynote Speaker" (Time : 11.30 AM) (Take 30 min. for his talk)	Mr. Arunjith Unnikrishnan, (Assistant Director(HR), Ernst & Young (EY), Kochi, Kerala)	Bonia Jose	Deepthy Varkey, Bonia Jose (Collect questions from zoom)	Soumya Markose Lincy P Alias (Collect questions from facebook & forward to Susanna & Renu through what's app)
Discussions preferred (You can ask questions)	,,	Bonia Jose (After discussion say thanks for such an informative talk)		
Share feedback link				
Inviting Solly Miss for Vote of Thanks		Deepthy Varkey		
Vote of Thanks (Time : 12.15 PM)	Dr. Solly George (Prof. & Dean Planning & Development MBITS, IQAC Coordinator MBITS)	Deepthy Varkey (After vote of thanks conclude the session along with tomorrows schedule or handover to principal)		

Roadmap to Industry 4.0 through Education 4.0

Dr. Buddha Chandrasekhar
Chief Coordinating Officer
AICTE, New Delhi
Ministry of Human Resource Development
Government of India

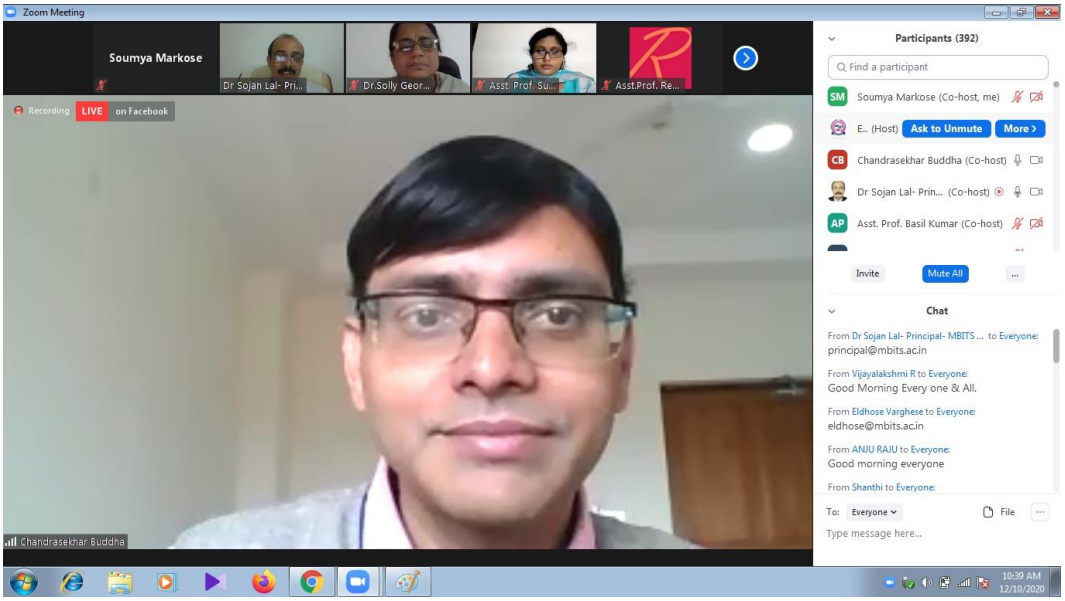
National education policy 2020 – preparing young minds for future

The NEP2020 marks a monumental development in the country's human resource transformation that aims to disrupt the existing Indian education system. It aims to transform India into a vibrant knowledge society, global knowledge superpower by making both school and college education more holistic, flexible, multidisciplinary, suited to 21st century needs and aimed at bringing out the unique capabilities of each student.

NEP2020 deals with education4.0, skills4.0, industry4.0 and technology4.0. Industry4.0 is capturing all other sectors like industrial side, agricultural side, country development, etc. In 2024 NEP will helps to have crores of job opportunities in Bio Tech, Food Tech, Healthcare, Agri Tech, energy, Telecommunications and other fields. NEP is also promoting multilingualism. Pillars of NEP2020 are Access, Equity, Quality, Affordability and Accountability.

Outcome:

- Teach to transform the ideas
- Educate everyone to empower
- Learn to lead
- Provide quality education to all


Zoom Meeting
Soumya Markose
Dr Sojan Lal- Pri...
Dr.Solly Geor...
Asst. Prof. Su...
Asst.Prof. Re...
Recording
LIVE
on Facebook
Chandrasekhar Buddha
Participants (392)
Find a participant
Soumya Markose (Co-host, me)
E.. (Host)
Ask to Unmute
More
Chandrasekhar Buddha (Co-host)
Dr Sojan Lal- Prin... (Co-host)
Asst. Prof. Basil Kumar (Co-host)
Invite
Mute All
Chat
From Dr Sojan Lal- Principal- MBITS ... to Everyone:
principal@mbits.ac.in
From Vijayalakshmi R to Everyone:
Good Morning Every one & All.
From Eldhose Varghese to Everyone:
eldhose@mbits.ac.in
From ANJU RAJU to Everyone:
Good morning everyone
From Shanthi to Everyone:
To: Everyone
File
Type message here...
10:39 AM
12/10/2020

NATIONAL EDUCATION POLICY 2020

PREPARING YOUNG MINDS FOR FUTURE

INNOVATION AND ENTREPRENEURSHIP

Buddha Chandrasekhar
Chief Coordinating Officer
AICTE, Ministry of Education, Government of India
CCONEAT@AICTE-INDIA.ORG
9740169197

KNOWLEDGE BASED SOCIETY

NATIONAL EDUCATION POLICY SIMPLIFIED

transform, empower, lead

INDIA, A YOUTHFUL NATION KNOWN FOR ITS INNOVATIVE ZEAL CAN LEAD THE WORLD.

HIGHLY SKILLED WORKERS, TECHNOLOGY, SPEED , THINK TANK AND TRUST ARE KEY FOR SUCCESS IN 21ST CENTUR'

LAST 5 YEARS - 250 BILLION USD FDI INFLOWS ... FDI INFLOWS IN INDIA IN 2019-20 WERE 74 BILLION DOLLARS. THIS IS AN INCREASE OF 20 PER CENT FROM THE YEAR BEFORE THAT."

ddha chandrasekhar, Chief Coordinating Officer, AICTE, MOE,CCONEAT@AICTE-INDIA.C

NATIONAL EDUCATION POLICY SIMPLIFIED

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- Auto Components
- Automobiles
- Aviation
- Biotechnology
- Chemicals
- Construction
- Defence Manufacturing
- Electrical Machinery
- Electronic System
- Food Processing
- IT and BPM
- Leather
- Media and Entertainment
- Mining
- Oil and Gas
- Pharmaceuticals
- Ports and Shipping
- Railways
- Roads and Highways
- Renewable Energy
- Space
- Textiles and Garments
- Thermal Power
- Tourism and Hospitality
- Wellness

10 CRORE DIRECT, 40 CRORE INDIRECT OPPORTUNITIES BY 2024

Buddha chandrasekhar, Chief Coordinating Officer, AICTE, MOE,CCONEAT@AICTE-INDIA.ORG

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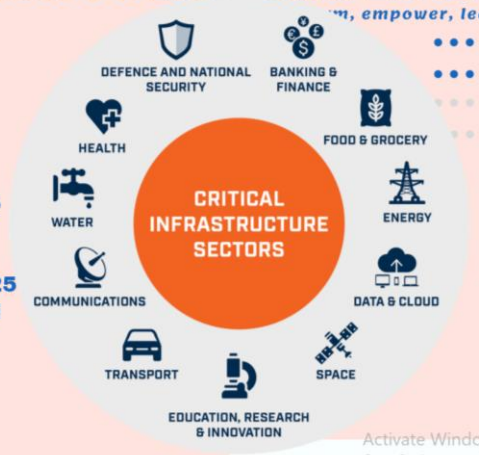
INDIAN GOVERNMENT LISTED 6,835 PROJECTS UNDER RS 111 LAKH CRORE NATIONAL CRITICAL INFRASTRUCTURE PIPELINE BY 2025 SPANNING ACROSS SECTORS SUCH AS ENERGY, SOCIAL AND COMMERCIAL INFRASTRUCTURE, COMMUNICATION, WATER AND SANITATION



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transform, empower, lead

1000 FOREIGN MANUFACTURING FIRMS READY TO START PRODUCTION PLANTS IN INDIA

HON'BLE PRIME MINISTER OF INDIA
SHRI NARENDRA MODI

BYE BYE CHINA ... WELCOME TO INDIA

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transform, empower, lead

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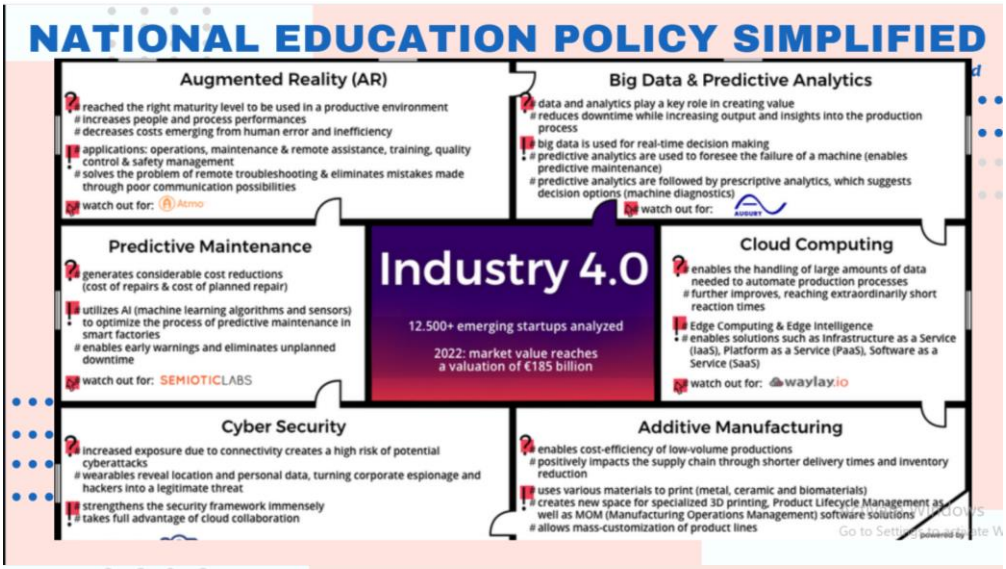
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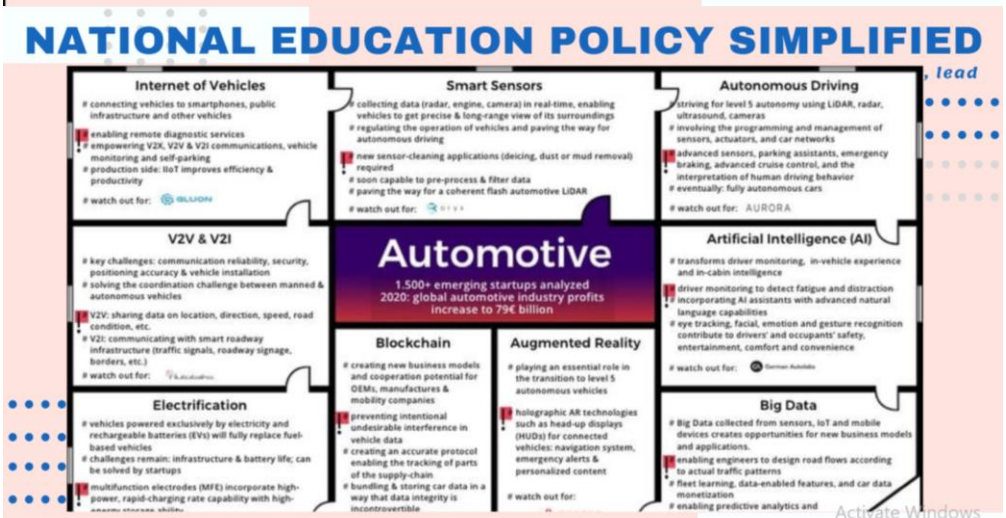
Augmented Reality (AR)
reached the right maturity level to be used in a productive environment
increases people and process performances
decreases costs emerging from human error and inefficiency
applications: operations, maintenance & remote assistance, training, quality control & safety management
solves the problem of remote troubleshooting & eliminates mistakes made through poor communication possibilities
watch out for: Atmo
Big Data & Predictive Analytics
data and analytics play a key role in creating value
reduces downtime while increasing output and insights into the production process
big data is used for real-time decision making
predictive analytics are used to foresee the failure of a machine (enables predictive maintenance)
predictive analytics are followed by prescriptive analytics, which suggests decision options (machine diagnostics)
watch out for: AUGURY
Predictive Maintenance
generates considerable cost reductions (cost of repairs & cost of planned repair)
utilizes AI (machine learning algorithms and sensors) to optimize the process of predictive maintenance in smart factories
enables early warnings and eliminates unplanned downtime
watch out for: SEMIOTICLABS
Industry 4.0
12.500+ emerging startups analyzed
2022: market value reaches a valuation of €185 billion
Cloud Computing
enables the handling of large amounts of data needed to automate production processes
further improves, reaching extraordinarily short reaction times
Edge Computing & Edge Intelligence
enables solutions such as Infrastructure as a Service (IaaS), Platform as a Service (PaaS), Software as a Service (SaaS)
watch out for: waylay.io
Cyber Security
increased exposure due to connectivity creates a high risk of potential cyberattacks
wearables reveal location and personal data, turning corporate espionage and hackers into a legitimate threat
strengthens the security framework immensely
takes full advantage of cloud collaboration
Additive Manufacturing
enables cost-efficiency of low-volume productions
positively impacts the supply chain through shorter delivery times and inventory reduction
uses various materials to print (metal, ceramic and biomaterials)
creates new space for specialized 3D printing, Product Lifecycle Management as well as MOM (Manufacturing Operations Management) software solutions
allows mass-customization of product lines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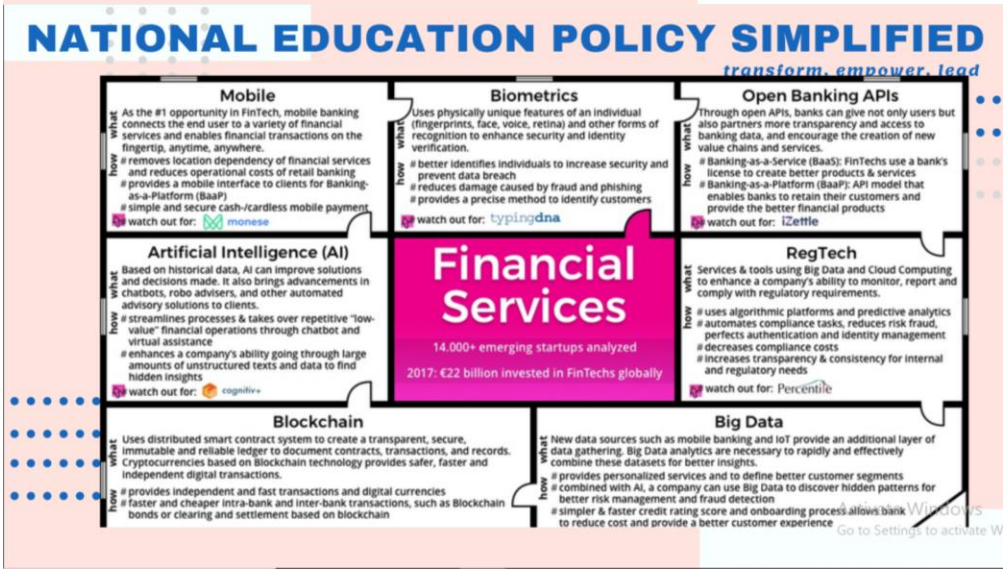
Internet of Vehicles
connecting vehicles to smartphones, public infrastructure and other vehicles
enabling remote diagnostic services
empowering V2X, V2V & V2I communications, vehicle monitoring and self-parking
production side: IIoT improves efficiency & productivity
watch out for: GLUON
Smart Sensors
collecting data (radar, engine, camera) in real-time, enabling vehicles to get precise & long-range view of its surroundings
regulating the operation of vehicles and paving the way for autonomous driving
new sensor-cleaning applications (deicing, dust or mud removal) required
soon capable to pre-process & filter data
paving the way for a coherent flash automotive LiDAR
watch out for: OYLA
Autonomous Driving
striving for level 5 autonomy using LiDAR, radar, ultrasound, cameras
involving the programming and management of sensors, actuators, and car networks
advanced sensors, parking assistants, emergency braking, advanced cruise control, and the interpretation of human driving behavior
eventually: fully autonomous cars
watch out for: AURORA
V2V & V2I
key challenges: communication reliability, security, positioning accuracy & vehicle installation
solving the coordination challenge between manned & autonomous vehicles
V2V: sharing data on location, direction, speed, road condition, etc.
V2I: communicating with smart roadway infrastructure (traffic signals, roadway signage, borders, etc.)
watch out for:
Automotive
1.500+ emerging startups analyzed
2020: global automotive industry profits increase to 79€ billion
Artificial Intelligence (AI)
transforms driver monitoring, in-vehicle experience and in-cabin intelligence
driver monitoring to detect fatigue and distraction
incorporating AI assistants with advanced natural language capabilities
eye tracking, facial, emotion and gesture recognition contribute to drivers' and occupants' safety, entertainment, comfort and convenience
watch out for:
Blockchain
creating new business models and cooperation potential for OEMs, manufactures & mobility companies
preventing intentional undesirable interference in vehicle data
creating an accurate protocol enabling the tracking of parts of the supply-chain
bundling & storing car data in a way that data integrity is incontrovertible
Augmented Reality
playing an essential role in the transition to level 5 autonomous vehicles
holographic AR technologies such as head-up displays (HUDs) for connected vehicles: navigation system, emergency alerts & personalized content
watch out for:
Electrification
vehicles powered exclusively by electricity and rechargeable batteries (EVs) will fully replace fuel-based vehicles
challenges remain: infrastructure & battery life; can be solved by startups
multifunction electrodes (MFE) incorporate high-power, rapid-charging rate capability with high-
Big Data
Big Data collected from sensors, IoT and mobile devices creates opportunities for new business models and applications.
enabling engineers to design road flows according to actual traffic patterns
fleet learning, data-enabled features, and car data monetization
enabling predictive analytics and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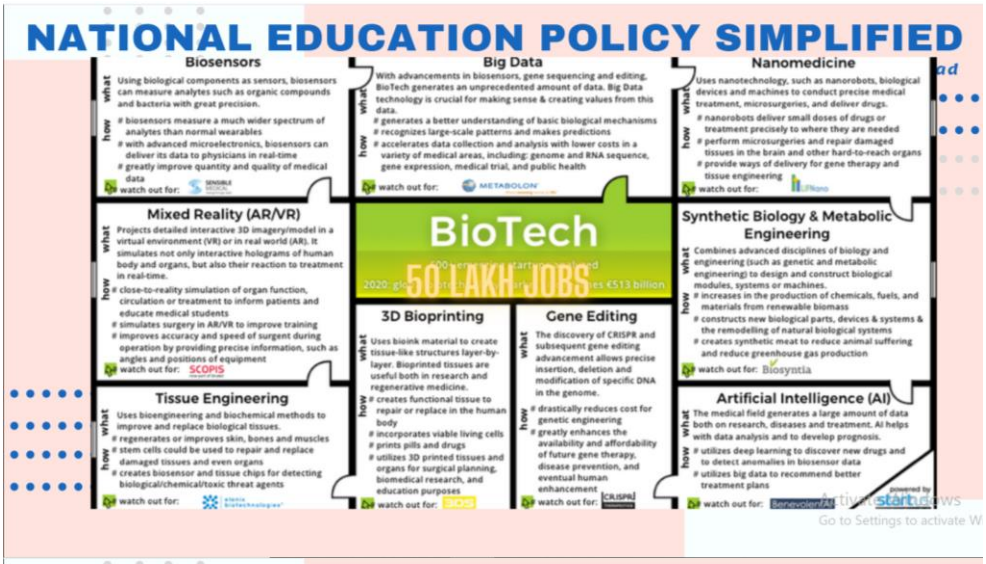
transform. empower. lead
Mobile
what: As the #1 opportunity in FinTech, mobile banking connects the end user to a variety of financial services and enables financial transactions on the fingertip, anytime, anywhere.
how:
removes location dependency of financial services and reduces operational costs of retail banking
provides a mobile interface to clients for Banking-as-a-Platform (BaaP)
simple and secure cash-/cardless mobile payment
watch out for: monese
Biometrics
what: Uses physically unique features of an individual (fingerprints, face, voice, retina) and other forms of recognition to enhance security and identity verification.
how:
better identifies individuals to increase security and prevent data breach
reduces damage caused by fraud and phishing
provides a precise method to identify customers
watch out for: typingdna
Open Banking APIs
what: Through open APIs, banks can give not only users but also partners more transparency and access to banking data, and encourage the creation of new value chains and services.
how:
Banking-as-a-Service (BaaS): FinTechs use a bank's license to create better products & services
Banking-as-a-Platform (BaaP): API model that enables banks to retain their customers and provide the better financial products
watch out for: iZettle
Artificial Intelligence (AI)
what: Based on historical data, AI can improve solutions and decisions made. It also brings advancements in chatbots, robo advisers, and other automated advisory solutions to clients.
how:
streamlines processes & takes over repetitive "low-value" financial operations through chatbot and virtual assistance
enhances a company's ability going through large amounts of unstructured texts and data to find hidden insights
watch out for: cognitiv+
Financial Services
14.000+ emerging startups analyzed
2017: €22 billion invested in FinTechs globally
RegTech
what: Services & tools using Big Data and Cloud Computing to enhance a company's ability to monitor, report and comply with regulatory requirements.
how:
uses algorithmic platforms and predictive analytics
automates compliance tasks, reduces risk fraud, perfects authentication and identity management
decreases compliance costs
increases transparency & consistency for internal and regulatory needs
watch out for: Percentile
Blockchain
what: Uses distributed smart contract system to create a transparent, secure, immutable and reliable ledger to document contracts, transactions, and records. Cryptocurrencies based on Blockchain technology provides safer, faster and independent digital transactions.
how:
provides independent and fast transactions and digital currencies
faster and cheaper intra-bank and inter-bank transactions, such as Blockchain bonds or clearing and settlement based on blockchain
Big Data
what: New data sources such as mobile banking and IoT provide an additional layer of data gathering. Big Data analytics are necessary to rapidly and effectively combine these datasets for better insights.
how:
provides personalized services and to define better customer segments
combined with AI, a company can use Big Data to discover hidden patterns for better risk management and fraud detection
simpler & faster credit rating score and onboarding process allows bank to reduce cost and provide a better customer experience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Biosensors
what
Using biological components as sensors, biosensors can measure analytes such as organic compounds and bacteria with great precision.
how
biosensors measure a much wider spectrum of analytes than normal wearables
with advanced microelectronics, biosensors can deliver its data to physicians in real-time
greatly improve quantity and quality of medical data
watch out for:
Big Data
what
With advancements in biosensors, gene sequencing and editing, BioTech generates an unprecedented amount of data. Big Data technology is crucial for making sense & creating values from this data.
how
generates a better understanding of basic biological mechanisms
recognizes large-scale patterns and makes predictions
accelerates data collection and analysis with lower costs in a variety of medical areas, including: genome and RNA sequence, gene expression, medical trial, and public health
watch out for:
METABOLON
Nanomedicine
what
Uses nanotechnology, such as nanorobots, biological devices and machines to conduct precise medical treatment, microsurgeries, and deliver drugs.
how
nanorobots deliver small doses of drugs or treatment precisely to where they are needed
perform microsurgeries and repair damaged tissues in the brain and other hard-to-reach organs
provide ways of delivery for gene therapy and tissue engineering
watch out for:
Mixed Reality (AR/VR)
what
Projects detailed interactive 3D imagery/model in a virtual environment (VR) or in real world (AR). It simulates not only interactive holograms of human body and organs, but also their reaction to treatment in real-time.
how
close-to-reality simulation of organ function, circulation or treatment to inform patients and educate medical students
simulates surgery in AR/VR to improve training
improves accuracy and speed of surgent during operation by providing precise information, such as angles and positions of equipment
watch out for:
SCOPIS
BioTech
50 LAKH JOBS
Synthetic Biology & Metabolic Engineering
what
Combines advanced disciplines of biology and engineering (such as genetic and metabolic engineering) to design and construct biological modules, systems or machines.
how
increases in the production of chemicals, fuels, and materials from renewable biomass
constructs new biological parts, devices & systems & the remodelling of natural biological systems
creates synthetic meat to reduce animal suffering and reduce greenhouse gas production
watch out for:
Biosyntia
3D Bioprinting
what
Uses bioink material to create tissue-like structures layer-by-layer. Bioprinted tissues are useful both in research and regenerative medicine.
how
creates functional tissue to repair or replace in the human body
incorporates viable living cells
prints pills and drugs
utilizes 3D printed tissues and organs for surgical planning, biomedical research, and education purposes
watch out for:
3DBio
Gene Editing
what
The discovery of CRISPR and subsequent gene editing advancement allows precise insertion, deletion and modification of specific DNA in the genome.
how
drastically reduces cost for genetic engineering
greatly enhances the availability and affordability of future gene therapy, disease prevention, and eventual human enhancement
watch out for:
CRISPR
Tissue Engineering
what
Uses bioengineering and biochemical methods to improve and replace biological tissues.
how
regenerates or improves skin, bones and muscles
stem cells could be used to repair and replace damaged tissues and even organs
creates biosensor and tissue chips for detecting biological/chemical/toxic threat agents
watch out for:
Artificial Intelligence (AI)
what
The medical field generates a large amount of data both on research, diseases and treatment. AI helps with data analysis and to develop prognosis.
how
utilizes deep learning to discover new drugs and to detect anomalies in biosensor data
utilizes big data to recommend better treatment plans
watch out for:
BenevolentAI
powered by
startups
Activate Windows
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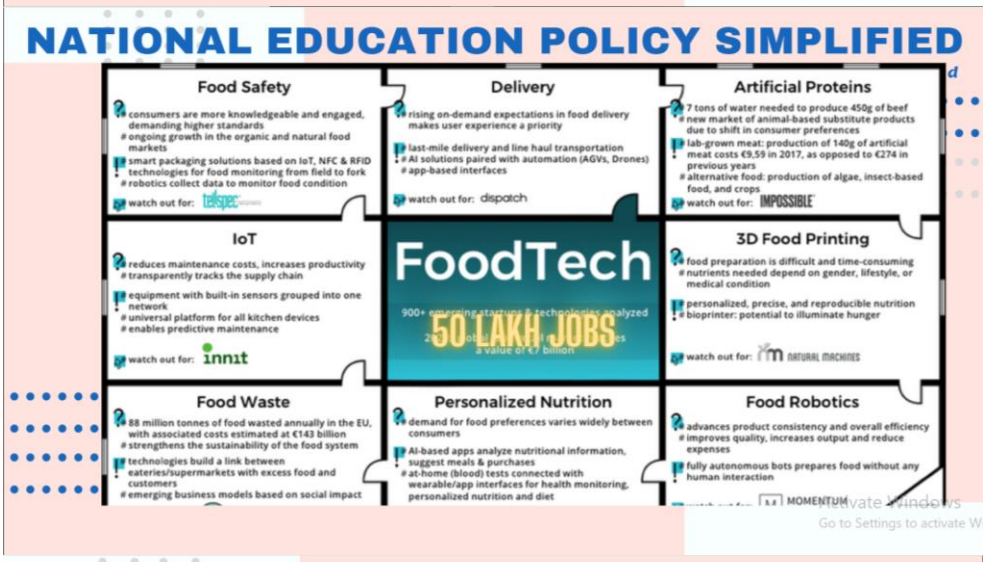
NATIONAL EDUCATION POLICY SIMPLIFIED
Food Safety
consumers are more knowledgeable and engaged, demanding higher standards
ongoing growth in the organic and natural food markets
smart packaging solutions based on IoT, NFC & RFID technologies for food monitoring from field to fork
robotics collect data to monitor food condition
watch out for:
tellspec
Delivery
rising on-demand expectations in food delivery makes user experience a priority
last-mile delivery and line haul transportation
AI solutions paired with automation (AGVs, Drones)
app-based interfaces
watch out for:
dispatch
Artificial Proteins
7 tons of water needed to produce 450g of beef
new market of animal-based substitute products due to shift in consumer preferences
lab-grown meat: production of 140g of artificial meat costs €9,59 in 2017, as opposed to €274 in previous years
alternative food: production of algae, insect-based food, and crops
watch out for:
IMPOSSIBLE
IoT
reduces maintenance costs, increases productivity
transparently tracks the supply chain
equipment with built-in sensors grouped into one network
universal platform for all kitchen devices
enables predictive maintenance
watch out for:
innit
FoodTech
50 LAKH JOBS
3D Food Printing
food preparation is difficult and time-consuming
nutrients needed depend on gender, lifestyle, or medical condition
personalized, precise, and reproducible nutrition
bioprinter: potential to illuminate hunger
watch out for:
NATURAL MACHINES
Food Waste
88 million tonnes of food wasted annually in the EU, with associated costs estimated at €143 billion
strengthens the sustainability of the food system
technologies build a link between eateries/supermarkets with excess food and customers
emerging business models based on social impact
Personalized Nutrition
demand for food preferences varies widely between consumers
AI-based apps analyze nutritional information, suggest meals & purchases
at-home (blood) tests connected with wearable/app interfaces for health monitoring, personalized nutrition and diet
Food Robotics
advances product consistency and overall efficiency
improves quality, increases output and reduce expenses
fully autonomous bots prepares food without any human interaction
MOMENTUM
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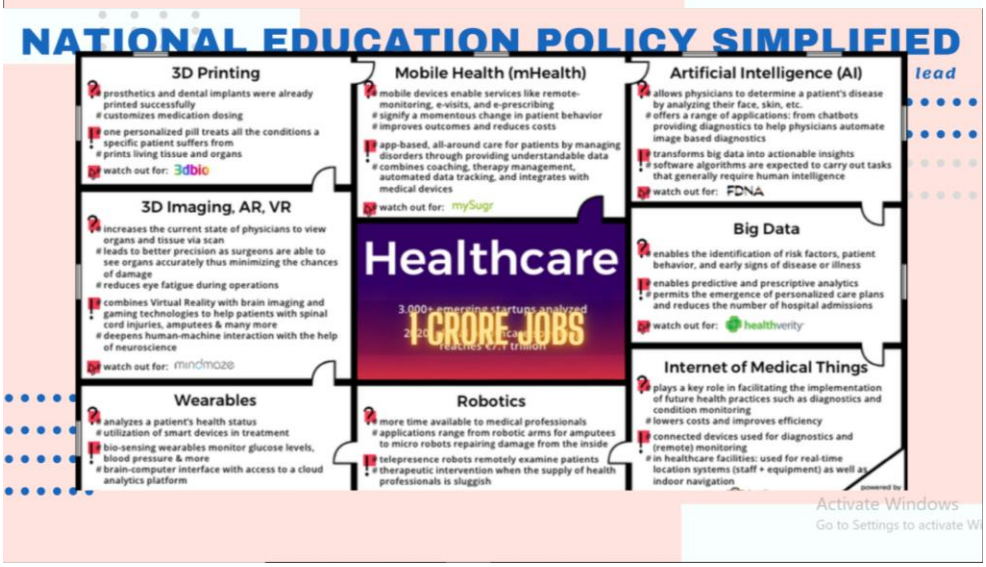
NATIONAL EDUCATION POLICY SIMPLIFIED
3D Printing
prosthetics and dental implants were already printed successfully
customizes medication dosing
one personalized pill treats all the conditions a specific patient suffers from
prints living tissue and organs
watch out for:
3dbio
Mobile Health (mHealth)
mobile devices enable services like remote-monitoring, e-visits, and e-prescribing
signify a momentous change in patient behavior
improves outcomes and reduces costs
app-based, all-around care for patients by managing disorders through providing understandable data
combines coaching, therapy management, automated data tracking, and integrates with medical devices
watch out for:
mySugr
Artificial Intelligence (AI)
allows physicians to determine a patient's disease by analyzing their face, skin, etc.
offers a range of applications: from chatbots providing diagnostics to help physicians automate image based diagnostics
transforms big data into actionable insights
software algorithms are expected to carry out tasks that generally require human intelligence
watch out for:
FDNA
3D Imaging, AR, VR
increases the current state of physicians to view organs and tissue via scan
leads to better precision as surgeons are able to see organs accurately thus minimizing the chances of damage
reduces eye fatigue during operations
combines Virtual Reality with brain imaging and gaming technologies to help patients with spinal cord injuries, amputees & many more
deepens human-machine interaction with the help of neuroscience
watch out for:
mindmaze
Healthcare
1 CRORE JOBS
Big Data
enables the identification of risk factors, patient behavior, and early signs of disease or illness
enables predictive and prescriptive analytics
permits the emergence of personalized care plans and reduces the number of hospital admissions
watch out for:
healthverity
Internet of Medical Things
plays a key role in facilitating the implementation of future health practices such as diagnostics and condition monitoring
lowers costs and improves efficiency
connected devices used for diagnostics and (remote) monitoring
in healthcare facilities: used for real-time location systems (staff + equipment) as well as indoor navigation
Wearables
analyzes a patient's health status
utilization of smart devices in treatment
bio-sensing wearables monitor glucose levels, blood pressure & more
brain-computer interface with access to a cloud analytics platform
Robotics
more time available to medical professionals
applications range from robotic arms for amputees to micro robots repairing damage from the inside
telepresence robots remotely examine patients
therapeutic intervention when the supply of health professionals is sluggish
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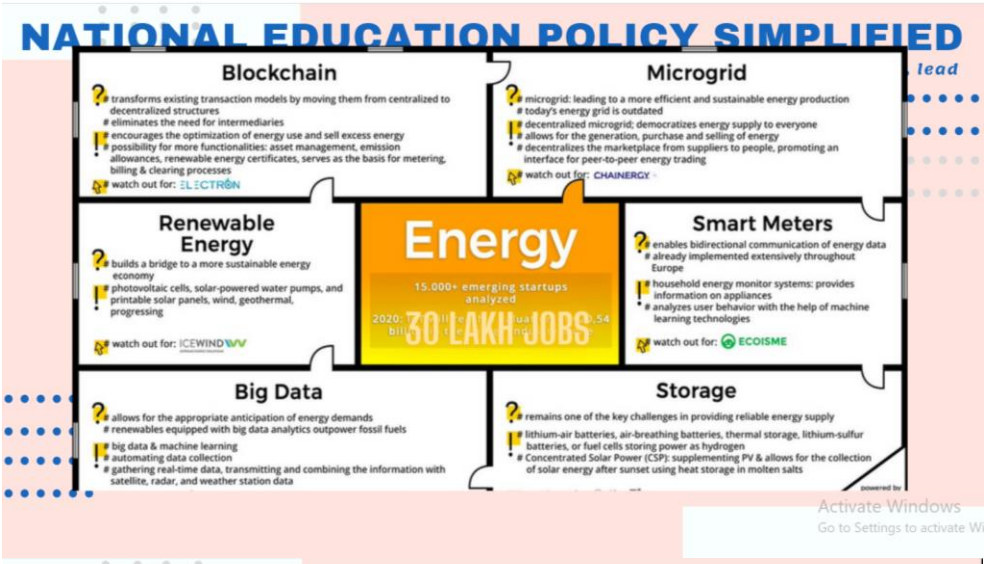
NATIONAL EDUCATION POLICY SIMPLIFIED
lead
Blockchain
transforms existing transaction models by moving them from centralized to decentralized structures
eliminates the need for intermediaries
encourages the optimization of energy use and sell excess energy
possibility for more functionalities: asset management, emission allowances, renewable energy certificates, serves as the basis for metering, billing & clearing processes
watch out for: ELECTRON
Microgrid
microgrid: leading to a more efficient and sustainable energy production
today's energy grid is outdated
decentralized microgrid; democratizes energy supply to everyone
allows for the generation, purchase and selling of energy
decentralizes the marketplace from suppliers to people, promoting an interface for peer-to-peer energy trading
watch out for: CHAINERGY
Renewable Energy
builds a bridge to a more sustainable energy economy
photovoltaic cells, solar-powered water pumps, and printable solar panels, wind, geothermal, progressing
watch out for: ICEWIND
Energy
15,000+ emerging startups analyzed
30 LAKH JOBS
Smart Meters
enables bidirectional communication of energy data
already implemented extensively throughout Europe
household energy monitor systems: provides information on appliances
analyzes user behavior with the help of machine learning technologies
watch out for: ECOISME
Big Data
allows for the appropriate anticipation of energy demands
renewables equipped with big data analytics outpower fossil fuels
big data & machine learning
automating data collection
gathering real-time data, transmitting and combining the information with satellite, radar, and weather station data
Storage
remains one of the key challenges in providing reliable energy supply
lithium-air batteries, air-breathing batteries, thermal storage, lithium-sulfur batteries, or fuel cells storing power as hydrogen
Concentrated Solar Power (CSP): supplementing PV & allows for the collection of solar energy after sunset using heat storage in molten salts
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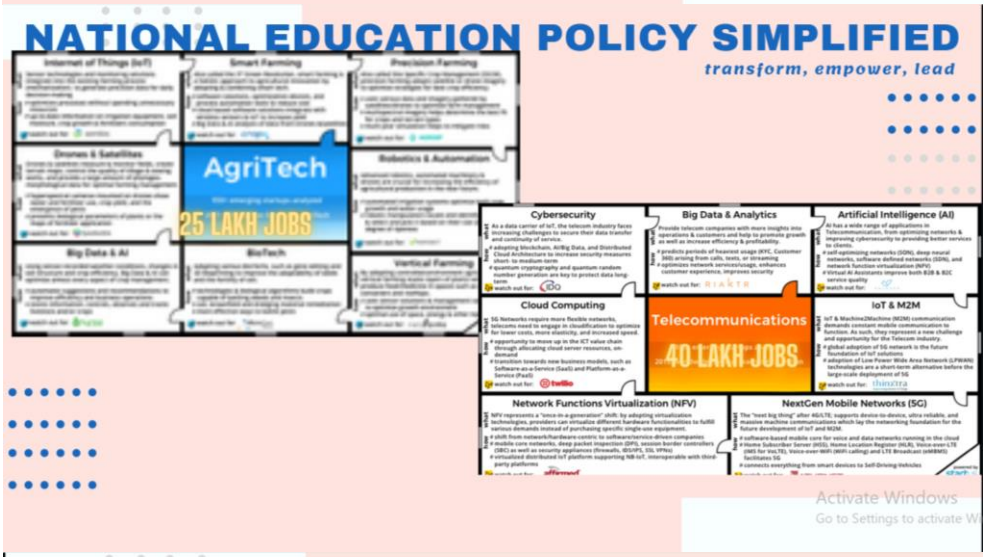
NATIONAL EDUCATION POLICY SIMPLIFIED
transform, empower, lead
Internet of Things (IoT)
Smart Farming
Precision Farming
Drones & Satellites
AgriTech
25 LAKH JOBS
Robotics & Automation
Big Data & AI
BioTech
Vertical Farming
Cybersecurity
Big Data & Analytics
Artificial Intelligence (AI)
Cloud Computing
Telecommunications
40 LAKH JOBS
IoT & M2M
Network Functions Virtualization (NFV)
NextGen Mobile Networks (5G)
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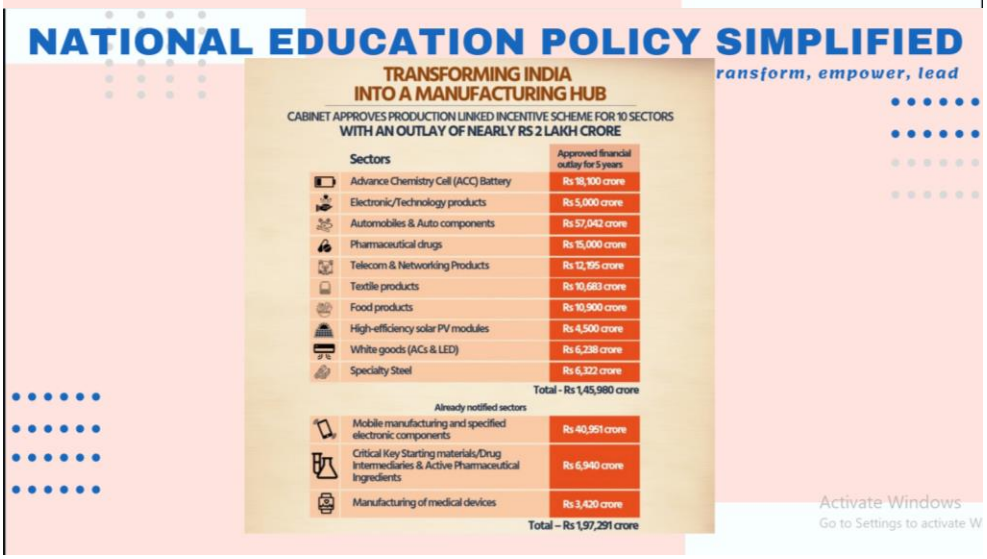
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ransform, empower, lead
TRANSFORMING INDIA
INTO A MANUFACTURING HUB
CABINET APPROVES PRODUCTION LINKED INCENTIVE SCHEME FOR 10 SECTORS
WITH AN OUTLAY OF NEARLY RS 2 LAKH CRORE
Sectors
Approved financial outlay for 5 years
Advance Chemistry Cell (ACC) Battery
Rs 18,100 crore
Electronic/Technology products
Rs 5,000 crore
Automobiles & Auto components
Rs 57,042 crore
Pharmaceutical drugs
Rs 15,000 crore
Telecom & Networking Products
Rs 12,195 crore
Textile products
Rs 10,683 crore
Food products
Rs 10,900 crore
High-efficiency solar PV modules
Rs 4,500 crore
White goods (ACs & LED)
Rs 6,238 crore
Specialty Steel
Rs 6,322 crore
Total - Rs 1,45,980 crore
Already notified sectors
Mobile manufacturing and specified electronic components
Rs 40,951 crore
Critical Key Starting materials/Drug Intermediaries & Active Pharmaceutical Ingredients
Rs 6,940 crore
Manufacturing of medical devices
Rs 3,420 crore
Total – Rs 1,97,291 crore
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NATIONAL EDUCATION POLICY 2020
NEP2020
EDUCATION 4.0
The future of education
EMPOWERING EDUCATION TO
PRODUCE INNOVATION
Education 4.0
Skills 4.0
Future
Industry 4.0
Technology 4.0
Dr. Buddha Chandrasekhar @BUDDHABJP chandrasekhar.buddha@gmail.com 9740169197

NATIONAL EDUCATION POLICY SIMPLIFIED
transform, empower, lead
50+ CRORE OPPORTUNITIES BY 2025
JOB SEEKERS, ENTREPRENEUR, RESEARCH
ARE OUR STUDENTS READY?
ARE OUR GRADUATING STUDENTS "READY FOR THE WORKPLACE"? DO THEY HAVE THE NECESSARY SKILLS, CORE KNOWLEDGE AND PRACTICLE KNOWLEDGE THAT WILL HELP THEM TRANSITION SMOOTHLY INTO COLLEGE AND THEN INTO A SUCCESSFUL CAREER.

40 Crore skill development
Buddha chandrasekhar, Chief Coordinating Officer, AICTE, MOE.CCONEAT@AICTE-INDIA.ORG

National Research Foundation

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National Innovation Foundation

CREATIVITY, CRITICAL THINKING TO ENCOURAGE LOGICAL DECISION-MAKING, INNOVATION AND ENTREPRENEURSHIP PRIME FOCUS OF NEP 2020

NEP MAKES EDUCATION EXPERIENTIAL, HOLISTIC, INTEGRATED, INQUIRY-DRIVEN, DISCOVERY-ORIENTED, LEARNER-CENTERED, DISCUSSION-BASED, FLEXIBLE

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Innovation a 3D coordinate

INNOVATORS NEED A WELL-ROUNDED EDUCATION THAT LETS THE INNOVATORS OF TOMORROW DEVELOP THEIR EXPERTISE ON ALL THE DIMENSIONS

KNOWLEDGE IS SILVER, ACTION IS GOLD

INCUBATION, CEO

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ENTREPRENEURS

5.8 CRORE ENTREPRENEURS IN INDIA

ONLY 5% THE LOWEST RATES IN THE WORLD, WHILE THE BUSINESS DISCONTINUATION RATE IN INDIA IS AMONG THE HIGHEST AT 26.4 % . ONLY 13% WOMEN ENTREPRENEURS

FEAR OF FAILURE - SOCIETY PROBLEM

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Entrepreneurship

MIC & Yukti demo

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ENTREPRENEURS

IT'S OK TO FAIL

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NATIONAL EDUCATION POLICY 2020

PREPARING YOUNG MINDS FOR FUTURE

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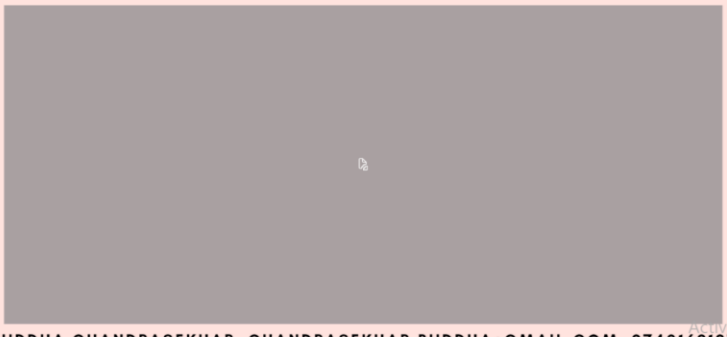
Empowering Students using Technology

Buddha Chandrasekhar
CHIEF COORDINATING OFFICER
AICTE, MINISTRY OF EDUCATION
GOVERNMENT OF INDIA



BUDDHA CHANDRASEKHAR CHANDRASEKHAR.BUDDHA@GMAIL.COM 9740169197

దేశాన్ని, గురువుని, తల్లిదండ్రులని, మాతృభాషని పూజిద్దాం

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SCHOOL EDUCATION

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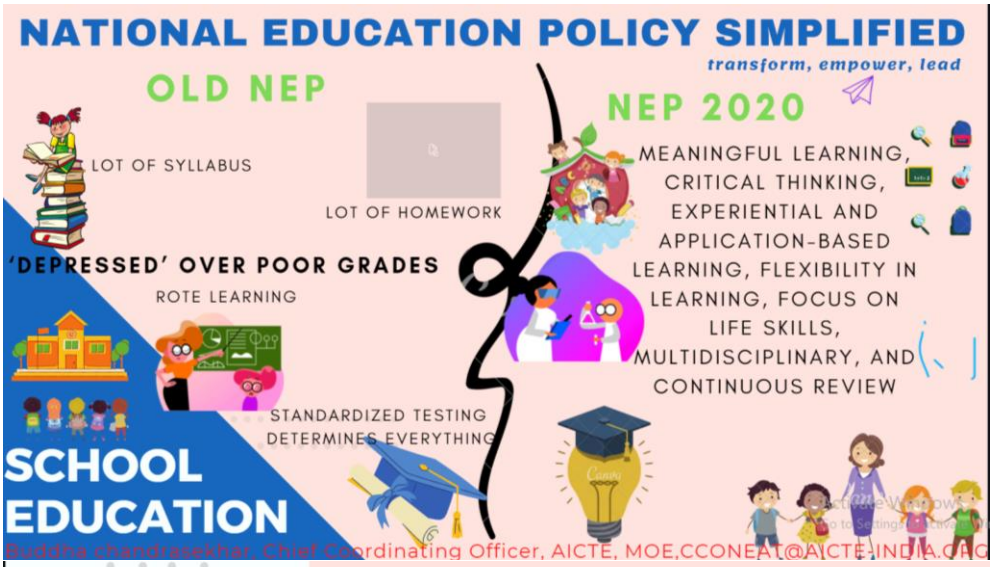

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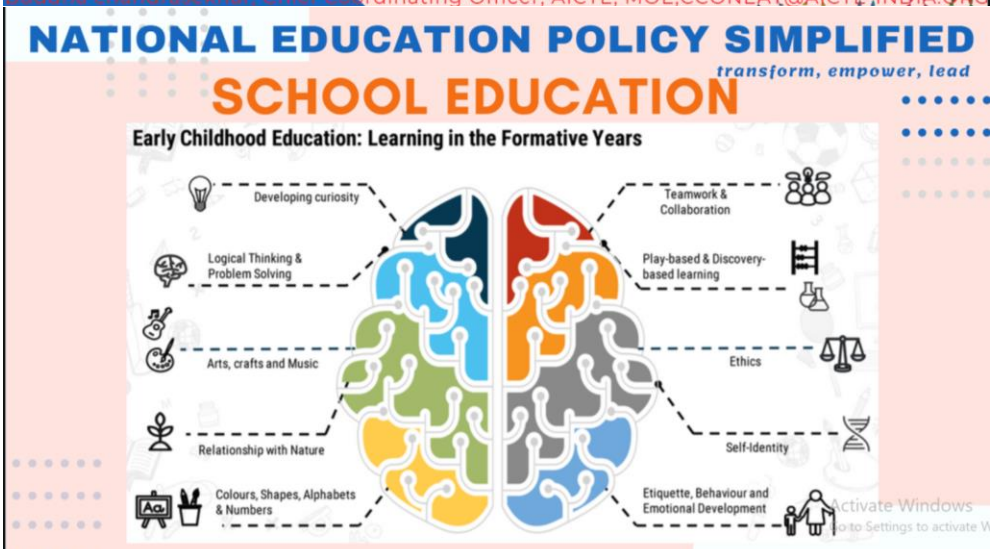

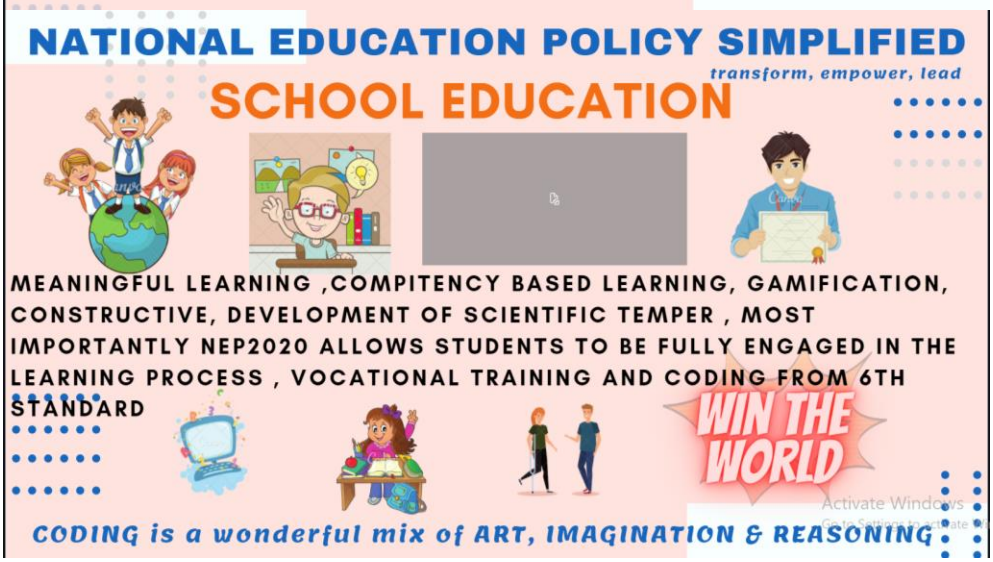

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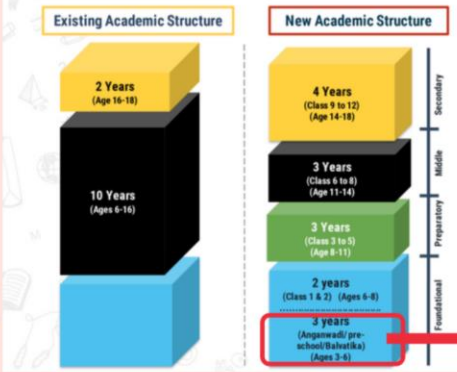
SCHOOL EDUCATION

transform, empower, lead

Transforming Curricular & Pedagogical Structure



New pedagogical and curricular structure of school education (5+3+3+4): 3 years in Anganwadi/pre-school and 12 years in school

- **Secondary Stage(4)** multidisciplinary study, greater critical thinking, flexibility and student choice of subjects
- **Middle Stage (3)** experiential learning in the sciences, mathematics, arts, social sciences, and humanities
- **Preparatory Stage (3)** play, discovery, and activity-based and interactive classroom learning
- **Foundational stage (5)** multilevel, play/activity-based learning

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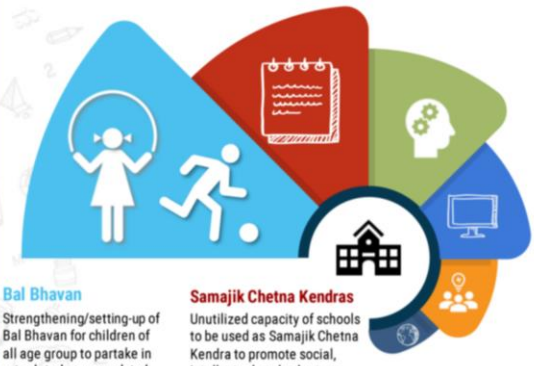
School Complexes/Clusters



Sharing Resources
Enable sharing of human & infrastructural resources

Efficiency
Efficient expedition and resourcing for schools through building school complexes

Governance
Effective governance of schools

Integration
Better integration of education across all levels through connected schools and shared teachers and resources

Bal Bhavan
Strengthening/setting-up of Bal Bhavan for children of all age group to partake in art-related, career-related, and play-related activities

Samajik Chetna Kendras
Unutilized capacity of schools to be used as Samajik Chetna Kendra to promote social, intellectual, and voluntary activities

Planning
Development of short-term and long-term plans (SDPs)

Pairing Schools
Twinning/pairing of one government school with one private school across the country

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SCHOOL EDUCATION

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ECCE for all by 2030: NCF for ECCE	Achieve 100% Gross Enrolment Ratio in school education by 2030	New curricular and pedagogical framework of 5+3+3+4	Medium of instruction mother tongue/local language/regional language at least upto grade 5
Preparatory class/Balvatika for 5-6 year olds	Special Education Zones (SEZ)	No hard separation of curricular/extra and co-curricular/arts and science and vocational/sports and academics	Exams in 3, 5 and 8 , in addition to Board exams in 10 and 12
National Foundational Literacy and Numeracy Mission	Gender Inclusion fund; KGBVs upto class 12	Curriculum to integrate Indian culture and ethos at all levels	Board exams: Modular, low stakes, based on conceptual knowledge and its applications
School Preparation module for all class 1 entrants	Bal Bhavans	Reduction in curriculum to core concepts	National Assessment Center – PARAKH
Utilize unused capacity of schools as Samajik Chetna Kendras	Tracking students, as well as their learning levels; universalisation of secondary education	Holistic Report card – use AI for identifying specific aptitude of child	Identify life skills to be attained in each grade as a part of NCF

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NEP 2020 HIGHER EDUCATION

- JOB SEEKERS & JOB CREATORS, RESEARCH ORIENTED
- INNOVATORS, RESEARCHERS
- FROM TEACHER CENTRIC TO STUDENT CENTRIC
- SEDG - SOCIALLY EDUCATIONALLY DISADVANTAGE GROUPS - NEW COLLEGES IN SC/BC/TRIBAL AREAS
- USING TECHNOLOGY
- FOCUSED ON LEARNING OUTCOME NOT ON MARKS
- INTERNSHIPS , REAL TIME LEARNING
- REGULATORY SYSTEM -TOO MUCH, TOO LESS

HIGHER EDUCATION

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NEP 2020

- HOLISTIC AND MULTIDISCIPLINARY EDUCATION - FLEXIBILITY OF SUBJECTS
- MULTIPLE ENTRY / EXIT
- UG PROGRAM - 3 OR 4 YEAR
- PG PROGRAM – 1 OR 2 YEAR
- INTEGRATED 5 YEAR BACHELOR'S / MASTER'S
- M PHIL TO BE DISCONTINUED
- CREDIT TRANSFER AND ACADEMIC BANK OF CREDITS
- HEIS : RESEARCH INTENSIVE/TEACHING INTENSIVE UNIVERSITIES AND AUTONOMOUS DEGREE GRANTING COLLEGES
- MODEL MULTIDISCIPLINARY EDUCATION RESEARCH UNIVERSITY (MERU)

HIGHER EDUCATION

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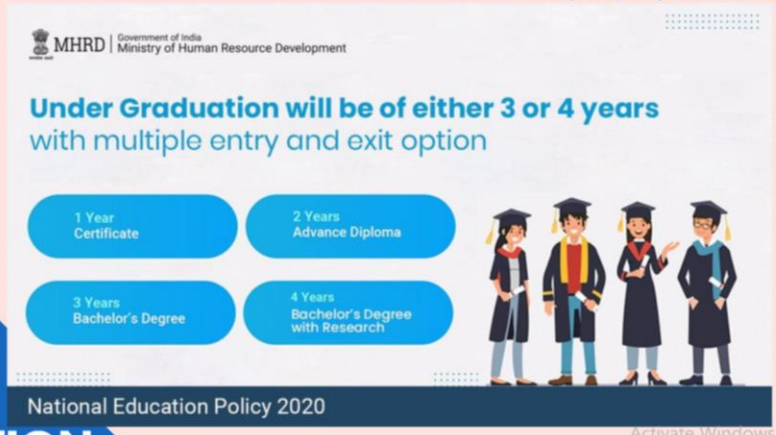

HIGHER EDUCATION

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TECHNOLOGY EMPOWERED EDUCATION

ONLINE EDUCATION -

- VIDEO
- AUDIO , PDF
- AR / VR , 3D
- AI, BLOCK CHAIN,DATA DRIVEN
- LIVE STREAMING
- DTH CHANNELS
- ONLINE ASSESSMENT
- INTERACTIVE CLASSROOMS
- DIVYANG FRIENDLY EDUCATION SOFTWARE
- E-CONTENT IN REGIONAL LANGUAGES
- VIRTUAL LABS
- NATIONAL EDUCATIONAL TECHNOLOGY FORUM (NETF)
- DIGITALLY EQUIPPING SCHOOLS, TEACHERS AND STUDENTS

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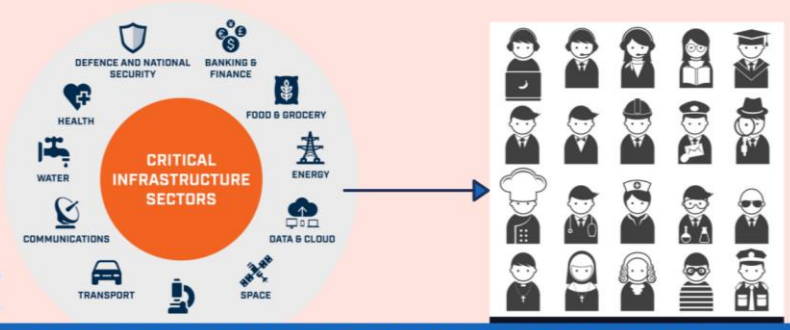
PROFESSIONAL EDUCATION



. INDIA MUST ALSO TAKE THE LEAD IN PREPARING PROFESSIONALS IN CUTTING-EDGE AREAS THAT ARE FAST GAINING PROMINENCE, SUCH AS ARTIFICIAL INTELLIGENCE (AI), 3-D MACHINING, BIG DATA ANALYSIS, AND MACHINE LEARNING, IN ADDITION TO GENOMIC STUDIES, BIOTECHNOLOGY, NANOTECHNOLOGY, NEUROSCIENCE, WITH IMPORTANT APPLICATIONS TO HEALTH, ENVIRONMENT, AND SUSTAINABLE LIVING THAT WILL BE WOVEN INTO UNDERGRADUATE EDUCATION FOR ENHANCING THE EMPLOYABILITY OF THE YOUTH.

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PROFESSIONAL EDUCATION

Stand-alone agricultural universities, legal universities, technical universities, and stand-alone institutions in other fields, shall aim to become multidisciplinary institutions offering holistic & multidisciplinary education

All institutions offering either professional or general education will aim to organically evolve into institutions/clusters offering both seamlessly, and in an integrated manner by 2030

Both capacity and quality of agriculture and allied disciplines must be improved through better skilled graduates & technicians, innovative research, and

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PROFESSIONAL EDUCATION

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NATIONAL EDUCATION POLICY SIMPLIFIED

Pillars of National education policy 2020:

'Access, Equity, Quality, Affordability, and Accountability.'

NEP2020 AIMS TO TRANSFORM INDIA INTO A VIBRANT KNOWLEDGE SOCIETY , GLOBAL KNOWLEDGE SUPERPOWER BY MAKING BOTH SCHOOL AND COLLEGE EDUCATION MORE HOLISTIC, FLEXIBLE, MULTIDISCIPLINARY, SUITED TO 21ST CENTURY NEEDS AND AIMED AT BRINGING OUT THE UNIQUE CAPABILITIES OF EACH STUDENT.

Outcome of NEP2020

Teach to Transform
Education to Empower
Learn to Lead

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Improving Teacher Education

- All teacher education programmes to be conducted within composite multidisciplinary institutions.
- New and comprehensive National Curriculum Framework for Teacher Education (by 2021)
- NTA testing for admission to B.Ed.
- Stringent action against substandard stand-alone Teacher Education Institutions (TEIs).
- National Higher Education Regulatory Council (NHERC), to function as single point regulator for higher education sector including teacher education
- Only educationally-sound, multidisciplinary, and integrated teacher education programmes to be made available
- Merit based scholarships for 4 year B.Ed. Integrated
- Setting-up of National Mission for Mentoring with a large pool of outstanding senior/retired faculty
- Teacher Eligibility Tests (TETs) at all stages will be strengthened

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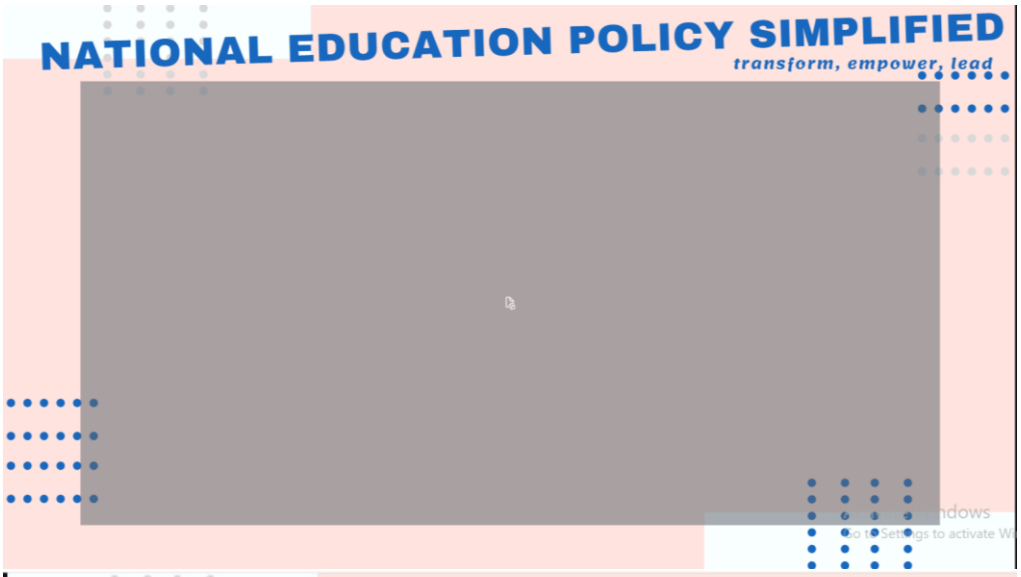
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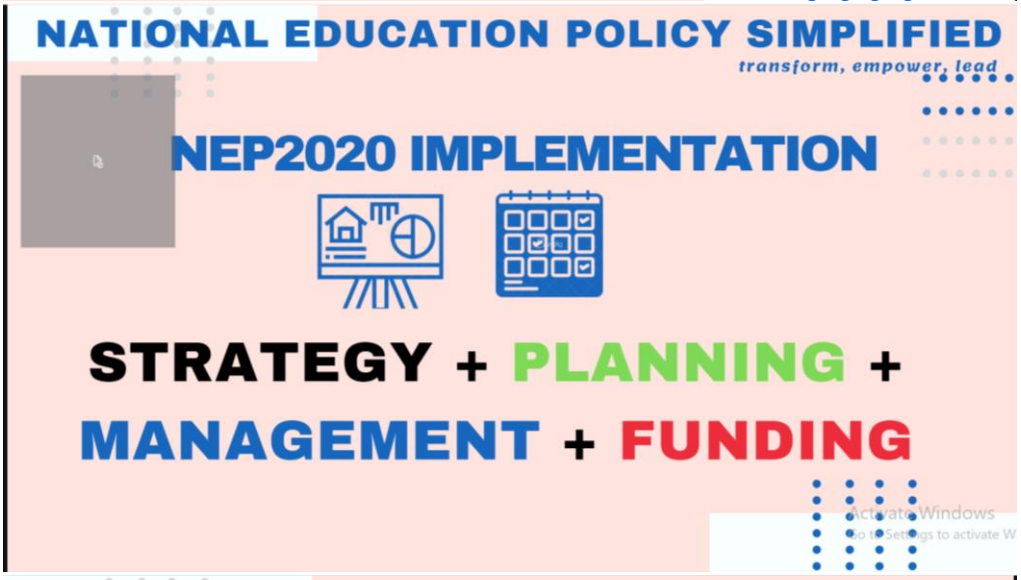
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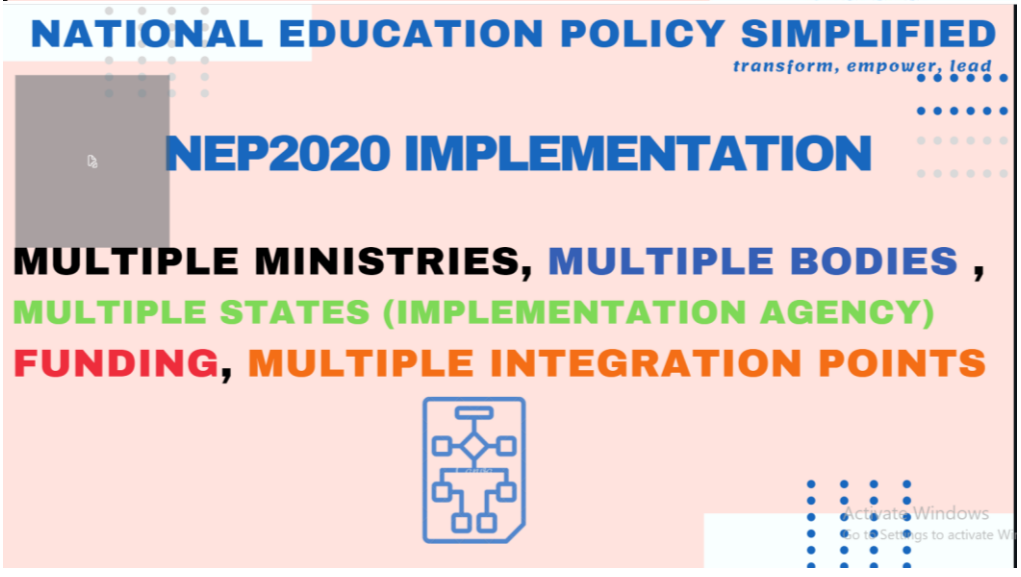
NEP2020 IMPLEMENTATION
STRATEGY + PLANNING +
MANAGEMENT + FUNDING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NEP2020 IMPLEMENTATION
MULTIPLE MINISTRIES, MULTIPLE BODIES ,
MULTIPLE STATES (IMPLEMENTATION AGENCY)
FUNDING, MULTIPLE INTEGRATION POINTS

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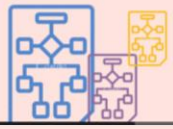
NEP2020 IMPLEMENTATION

MASTER PROJECT PLAN - MICRO IMPLEMENTATION PROJECT PLANS WITH MILESTONES ,TIMELINES , PEOPLE MANAGEMENT, RISK MITIGATION,



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NEP 2020 IMPLEMENTATION

MASTER IMPLEMENTATION PLAN (MIP)

STATE LEVEL IMPLEMENTATION PLAN,(SIP)
MINISTRY LEVEL IMPLEMENTATION PLAN (MLIP)

MASTER FINANCE PLAN
STATE LEVEL FINANCE PLAN
MINISTRY LEVEL FINANCE PLAN

TECHNOLOGY IMPLEMENTATION PLAN, INFRASTRUCTURE REQUIREMENT PLAN , PROCUREMENT MANAGEMENT PROJECT PLAN ,PROJECT RISK MANAGEMENT PLAN .

RESOURCE MANAGEMENT PLAN , PUBLIC - PRIVATE PARTNERSHIP PLAN

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Quality Enhancement through Institutional Ranking

Dr. M. S. Shyamasundar
Advisor
Southern Region Coordinator
NAAC, Bengaluru

Quality assurance is relevant internationally. Multitasking and prioritizing the priority is a part of quality assurance. NAAC process is based on global practices and norms. International network called INQAAHE standardize various QA agencies. NAAC creates a platform to exchange teaches and students internationally. It's highly beneficial to the students going for higher studies abroad. QA gives opportunity to identify the strength and weakness and to maintain database. There exists a triangular relationship between higher education institutes, students and industries.

UGC stipulates the CGPA and grades of NAAC as a quality bench mark, tool for evaluating and improving quality of higher education. The objective of IQAC is to develop a system for conscious, consistent and catalytic action to improve the academic and administrative performance of the institution. Implement the institutional best practices and new educational policy to build the attitude.

Quality enhancement is a continuous process and concerted effort on the part of the institutions is required to achieve excellence in all spheres of academic and administrative activities of the institutions.

Outcome:

- Global standardization is ensured to enhance the quality.
- To achieve quality, we need to work together, collaborate with others, tolerate differences and respect diverse views.

Zoom Meeting
Soumya Markose
Dr.Solly George...
Dr Sojan Lal- Pri...
Asst. Prof. Su...
Asst.Prof. Renu ...
LIVE on Facebook
MS Shyamasundar
Participants (419)
Find a participant
Madhukar Seshadri (Co-host)
Prof. Johny Joseph (Co-host)
Prof.(Dr.) Jagathy Raj ... (Co-host)
Aswathy Sudhakaran
Abhijith Jayan
Invite
Mute All
Chat
Grateful to you for informative session
please send the pdf
stargold927@gmail.com
From shaukat ansari to Everyone:
Feedback link, please.
From shugufta fatima to Everyone:
link please
From Tirupathi Kadam to Everyone:
very good session, thank you to team.
To: Dhanesh M L (Privately)
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11:46 AM
12/10/2020

Institutionalisation of Quality culture among HEIs

Dr. M. S. Shyamasundar
Adviser
National Assessment and Accreditation Council
Bengaluru, India

Relevance of QA – International

- NAAC's Process is based on global good practices and norms - 13,399 accreditation visits
- INQAAHE
  - Exchange of Teachers and Students
  - MOU – Credit Transfer -Mobility of Students
  - Many Embassies are using Assessment and Accreditation
  - Most USA universities recognise NAAC's highest grade 3 year HEI degrees equal to 4 year US degree for further studies

Relevance of QA

- SWOT
- Documentation – Database – MIS
- Employers
- Mandatory regime
- Public Image – Quality Tag / Stamp to attract good students and teachers
- Internal Planning & Allocation of funds - Allows the institution to set priorities
- A framework for determining the New sense of direction and identity an institution should take

Accreditation outcomes into Policy Planning - Funding Linkages

UGC stipulates the CGPA and Grades of NAAC as a Quality Benchmark - Pre-condition

- Graded Autonomy
- Autonomy to HEIs
- Deemed-to-be-Universities
- Open and Distance Learning
- University and Colleges with Potential for Excellence (UPE/CPE)
- Institutions of Eminence (IOEs)
- No LIC visit to the college for permanent affiliation

Relevance of QA

- Students, parents and society get reliable information on QA of HEIs
- Self-propelling and self-regulating
- Tool for evaluating and improving quality of higher education
- Basis for future planning
- Structure for educational improvement
- Assists in reform efforts
- Users to make decisions
- Pressure point for change

NEP – 2020 Holistic, Flexible & Multidisciplinary

- A complete overhaul is necessary to re-energize HES
- Overarching Autonomous Umbrella Institution – Higher Education Commission of India (HECI)
  Four Independent Verticals
  - National HE Regulatory Council (NHRC) – Regulation – Light but Tight
  - Meta – Accrediting Body – NAC - Accreditation
  - HE Grants Council (HEGC) - Funding
  - General Education Council (GEC) – Academic Standard Setting – ICAR, VCI , NCTE, CoA – Professional Standard Setting Bodies (PSSBs) – No Regulatory Role – IDPs – HEIs
    Responsibility and accountability shall devolve to HEIs concomitantly

Internal Quality Assurance Cell

Objective

The prime aim of the IQAC is to develop a system for conscious, consistent and catalytic action to improve the academic and administrative performance of the institution

As a mechanism for efficient follow-up of assessment outcomes and channelizing institutional efforts towards academic excellence.

The Functions of IQAC

- **Facilitating the creation of a learner-centric environment**
- **Arrangement for feedback responses**
- **Dissemination of information on the various quality parameters of higher education**
- **Organization of inter and intra institutional workshops, seminars on quality related themes and promotion of quality circles**
- **Provide a sound basis for decision-making to improve institutional functioning**
- **Better internal communication**
- **Facilitate internalization of the quality culture**

Contd…

- Acting as a nodal agency of the HEI for coordinating quality-related activities, including adoption and dissemination of good practices
- Development and maintenance of Institutional database through MIS for the purpose of maintaining /enhancing the institutional quality
- Development of Quality Culture in HEI
- Preparation of the Annual Quality Assurance Report (AQAR) of the HEI
- Bi-annual development of Quality Radars (QRs) and Ranking of Internal Units of HEIs based on the AQAR
- Interaction with SQACs in the pre and post accreditation quality assessment, sustenance and enhancement endeavours.

IQAC may develop Benchmarks

- All the teachers in the department should compulsorily register for M. Phil./ Ph. D.
- Every member of the department either independently or jointly should publish at least one research article / year in any of the referred journals.
- Every department should undertake one project at least per year either minor or major.
- In a year each staff should have attended at least two seminars / conferences at National Level for which registration fee shall be borne by the HEI.
- Each department should organize at least one workshop or seminar / year

IQAC may develop Benchmarks

- Each department should organize at least 10 guest lectures per academic year
- Staff members are encouraged to go as resource persons and give their expertise / consultancy to outside organizations
- Newsletter/ magazines/ book publications by the departments are encouraged
- Every department should strive to achieve 90 - 100% pass percentage in their discipline
- Every department should prepare the students to obtain at least one university rank per year

IQAC may develop Benchmarks

- Each staff should publish at least one research article / year in any of the referred journals.
- Every department should attract at least one foreign student per year.
- Each staff should interact with at least one foreign student / year to get exposure of cross culture integration.
- Each department should organize at least 01 international cultural evening per year
- Staff members are encouraged to give their expertise / consultancy to outside organizations
- Every department should showcase their strengths in their website
- Every HEI should facilitate students to get the opportunity to develop a range of transversal skills

Best Practices

- Identification
- Implementation
- Institutionalization
- Internalization
- Dissemination

Building the Attitude

If an EGG is Broken by an Outside Force….

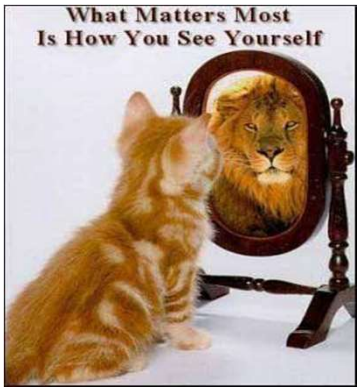
A LIFE ENDS.

If an EGG Breaks from Within..... .

LIFE BEGINS.

Great Things Always Begin From Within .

Internal Quality Assurance System



Ranking and Accreditation

- NIRF – Fast Food – Glamour - Short
- NAAC – Healthy Food - Long
- NBA

Environment Consciousness - Green Audit – Eco-friendly initiatives

- Energy conservation
- Use of renewable energy
- Water harvesting
- Check dam construction
- Efforts for Carbon neutrality
- Plantation
- Hazardous waste management
- e-waste management

Institutional Social Responsibility

Distribution of Metrics and Key Indicators across Criteria

Type of HEIs	Universities	Autonomous Colleges	Affiliated/Constituent Colleges	
			UG	PG
Criteria	7	7	7	7
Key Indicators (KIs)	34	34	31	32
Qualitative Metrics (Q_lM)	36	35	35	36
Quantitative Metrics (Q_nM)	79	72	58	60
Total Metrics ($Q_lM + Q_nM$)	115	107	93	96

Grading System adopted in the RAF

Range of Institutional Cumulative Grade Point Average (CGPA)	Letter Grade	Status
3.51-4.00	A++	Accredited
3.26-3.50	A+	Accredited
3.01-3.25	A	Accredited
2.76-3.00	B++	Accredited
2.51-2.75	B+	Accredited
2.01-2.50	B	Accredited
1.51-2.00	C	Accredited
<= 1.50	D	Not Accredited

Quality enhancement is a continuous process and concerted effort on the part of the institutions is required to achieve excellence in all spheres of academic and administrative activities of the institutions.

To achieve quality, we need to work together, collaborate with others, tolerate differences, respect diverse views because

"None of us is as smart as all of us"

(Johnson and Johnson)

Thank You

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Research - Thrust for Quality in Higher Education Institutions

Prof. Dr. Jagathy Raj V. P.
Professor
Cochin University of Science and Technology (CUSAT)
Kerala

The Role of Research in Higher Education: Implications and Challenges

Higher education imparts in-depth knowledge and understanding so as to advance the students to new frontiers of knowledge in different walks of life. Higher education is seen as a process in which the students are counted as "products" absorbed in the labor market. Thus, higher education becomes input to the growth and development of business and industry.

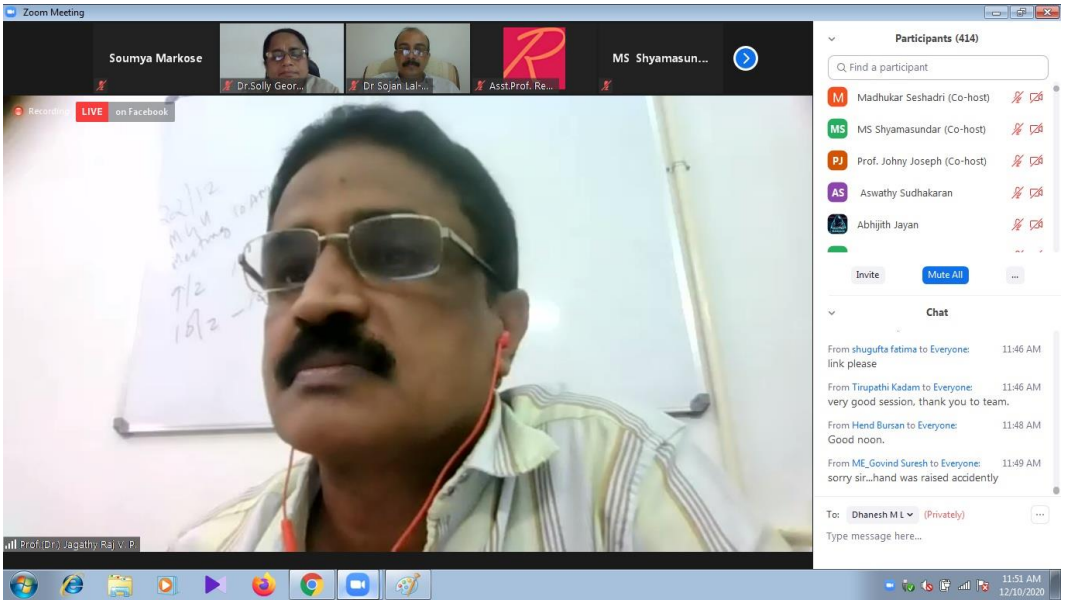
Research is a process of systematic inquiry that involves gathering of data; documentation of critical information; and analysis and understanding of that data/information, in accordance with appropriate procedures based on scientific principles, in order to better understand a phenomenon about which we are interested or concerned.

The importance of academic research is Academic research facilitates learning, Research highlights the issues, Research helps in the growth of a business, Academic research leads to personal growth of students. One of a major constraint and challenge in the field of academic research in India is the lack of an encouraging academic environment, ill-equipped libraries, labs and equipment, inadequate infrastructure, lack of funds and faculty crunch. The Ranking of Institutions at national level instills a competitive spirit amongst institutions to perform better and secure higher rank in international ranking. These rankings act

as a guide to students for selection of universities based on a set of criteria and helps universities to improve their performance on various ranking parameters and identify gaps in research and areas of improvement.

Outcome:

- Fostering global competencies among students
- Improve employee morale and motivation
- Offering opportunities and incentives for teachers for further development of their 'research based' teaching competence and excellence.
- Institutions should be given an adequate financial assistance to support its faculty & teaching staff for conducting research.
- Establish appropriate teaching load for academics and provide sufficient time to faculty to get engaged in both research and other community related activities.



The Role of Research in Higher Education: Implications and Challenges

Prof.(Dr.) Jagathy Raj V. P.
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Email: jagathyraj@gmail.com
Mobile: 9847220016

What is Research?

- Research is a process of systematic inquiry that involves gathering of data; documentation of critical information; and analysis and understanding of that data/information, in accordance with appropriate procedures based on scientific principles, in order to better understand a phenomenon about which we are interested or concerned.

- It is a lengthy process, focused, specific, intensive, accumulative and educational, and is not mere information gathering, transportation of facts from one location to another and rummaging for information.

Academic research and Professional research

- **Academic Research** is focused primarily on making new discoveries for the scientific community.
- **Professional Research** is geared more towards solving a specific problem for an organization, often a business, or its customers.
- The two are both valid and contribute to progress.

Academic Research is defined as a "*Systematic investigation into a problem or situation, where the intention is to identify facts and/or opinions that will assist in solving the problem or dealing with the situation*".

- Professional research is defined as work performed to advance an individual's profession. It is a form of communication produced in a professional manner in order to facilitate work.
- Professional research focuses on research goals/questions that emerge from business requirements.
- It may or may not use the formal, scientific and systematic procedures to discover answers. It is not grounded in theories and may not require a representative sample.

Why Academic Research is important ?

- Academic Research facilitates learning
- Research highlights the issues
- Research helps in the growth of a business
- Academic research leads to personal growth of students

Academic Research	Professional Research
Also called as Scholarly Research Seeks to add to a larger "body of knowledge"	Also called as Applied Research Seeks to find solutions to instant problems and issues
Questions tend to be more conceptual	Problems tend to be more practical
Theoretically focused	Organizationally focused
Findings are generally made public	Findings are generally kept private
Results generally spur ideas and questions for future research	Results are generally used internally to make decisions and set up strategy
Assessed through peer review by means of academic discipline standards	Assessed by client-organisation and/or industry standards
Shared primarily through academic writings (doctoral dissertation, thesis, dissertation research, scholarly journals, academic conferences & presentations, academic articles and other publications (e.g., books)	Shared mainly through internal reports to reveal results; may also be shared more widely through professional conferences and industry/trade publications (e.g., articles, case studies, etc.)

Role of Research

- In a globalized world, the role of research in an academic institution is significant for its sustainability and development, and it is imperative to have knowledge-driven growth based on innovation.
- The quest for knowledge is the basic principle behind research.
- The quality of research work directly translates to the quality of teaching and learning in the classroom, thereby benefiting the students, the society and the country.
- The promotion of research in a huge and diverse country like India will help the nation evolve as a knowledge reservoir in the international arena.

Academic Research

- It is well-accepted that academic research has contributed enormously to find solutions to many problems faced by our society and industries.
- There have been multiple instances when industries have turned to academics for finding solutions to vital issues.
- The need for sharing knowledge between research institutions and industry has become increasingly evident.
- The emerging importance of interdisciplinary fields has given rise to institutional collaborations that allow knowledge to be pooled together. Often, it is industry which is the ultimate beneficiary.
- Research provides basic inputs that can be used for planning and policy decision-making. Needless to say, academic research is an integral part of global development.

Benefits of Research

- Research is not only critical to the economic and social development of society; it is also critical to the mission of our University.
- Some research benefits are obvious:
  - benefits of an economic kind (a new product, technology or service),
  - a social kind (increased knowledge of relevance to policy makers),
  - of an environmental kind (improved techniques to ensure sustainable food production),
  - of a cultural kind (increased understanding of cultural values or social approaches) or
  - of a health kind (a better understanding of the causes of medical conditions or better means of delivering health services).

Benefits of Research – contd..

- For some research the benefit may not be so obvious.

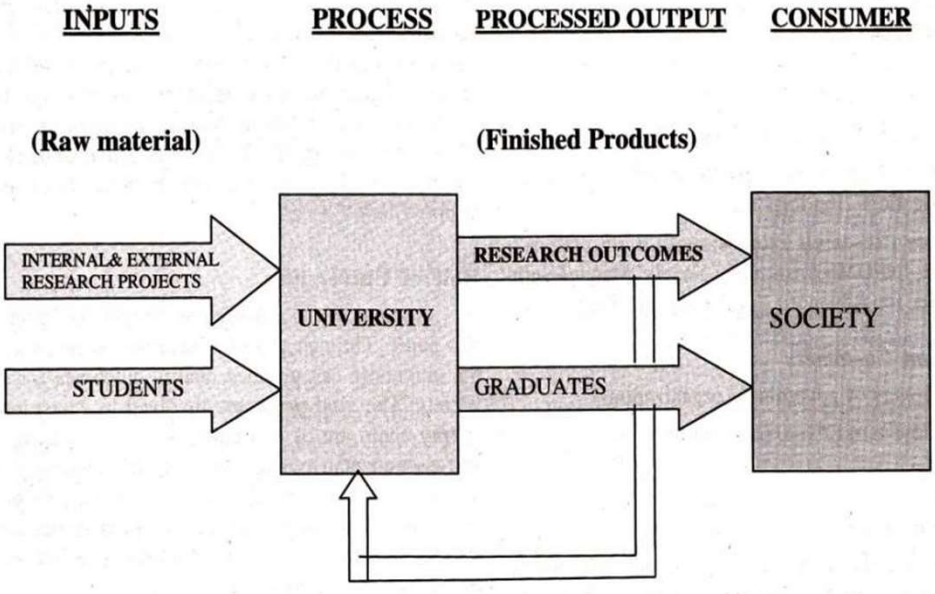
  As Albert Einstein once remarked: *"If we knew what it was we were doing, it would not be called research, would it?"*
- But such research, adds to the stock of global knowledge and provides the source of new ideas, methods, techniques and innovation across a whole range of disciplinary and multi-disciplinary areas.
- Our economy is based very strongly on technology and innovation - and that also centres on the resources sectors of agriculture, energy and minerals.
- And as we continue to pursue our global research agenda, we can look to a vast range of opportunities to build a future economy based on the existing strengths of our resources wealth backed by research from the Universities

WHAT IS HIGHER EDUCATION?

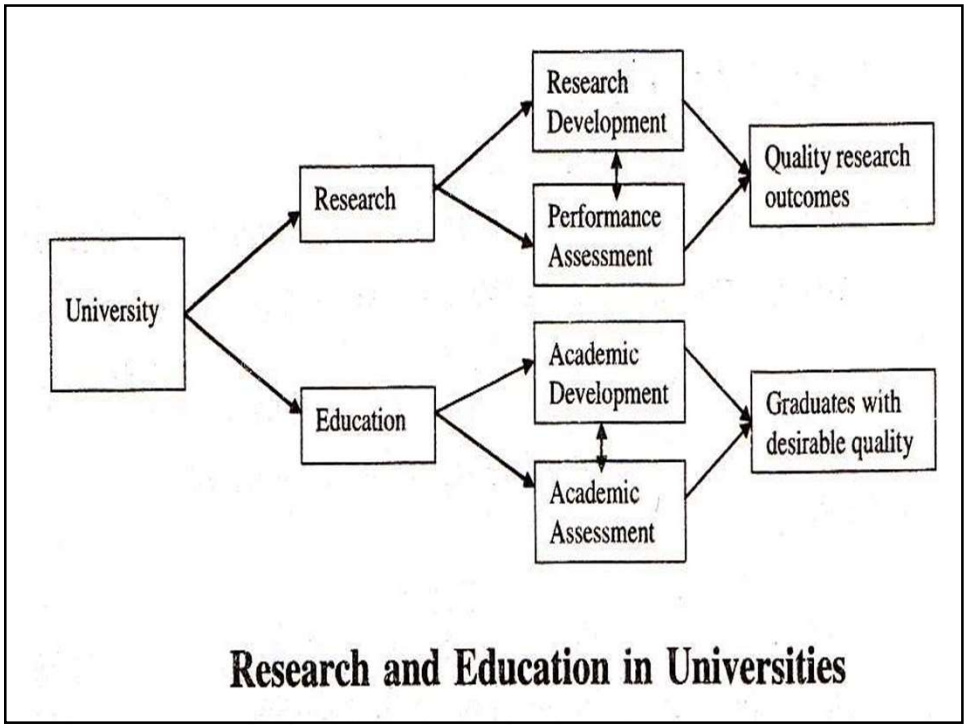
HIGHER EDUCATION
▪ producing qualified human resources for the labor market
▪ educating qualified researchers and cultural agents
▪ providing higher level teaching in all fields of knowledge
▪ extending education beyond secondary education

INSTITUTIONAL FRAMEWORK OF INDIAN HIGHER EDUCATION

Central Universities	A Central University in India is established by the Government of India, by Act of Parliament.
State Universities	A State University in India is established by the State Government, by State Legislature.
Deemed Universities	Institutions which have been accorded the status of a university with authority to award their own degrees through Central Government notification.
Open Universities	An Open University can be a central or state University imparting education exclusively through distance mode in any branch or branches of knowledge.
Institutes of National Importance	Some of the higher education institutions are awarded the said status of Institutes of National Importance by the Act of Parliament.
Other Institutions	Include the Institutions established by State Legislative Act and colleges affiliatedto the University, both



Holistic View of Research and Educational Supply Chain



Research and Education in Universities

Table 2: Regulatory and Statutory Bodies in Higher Education

S.No.	Regulatory Body	Functions
1.	University Grants Commission (UGC)	• Co-ordination, determination and maintenance of standards in higher education. • Release of grants to individual institutions.
2.	All India Council for Technical Education (AICTE)	• Proper planning & co-ordinated development of technical education system throughout the country.
3.	Distance Education Council (DEC) (now as DEB under UGC)	• Promotion of Open University and Distance Education systems in the education pattern of the country and for coordination and determination of standards of teaching, evaluation & research in such systems.
4.	Indian Council of Agricultural Research (ICAR)	• Co-ordination of agricultural research and development programmes and develop linkages at national and international levels with related organisations to enhance the quality of life of the farming community.
5.	Bar Council of India (BCI)	• Co-ordination, determination and maintenance of standards in legal education and profession.
6.	National Council for Teacher Education (NCTE)	• Achieving planned and co-ordinated development of the teacher education system throughout the country, the regulation and proper maintenance of norms and standards in teacher education and for matters connected therewith.
7.	Rehabilitation Council of India (RCI)	• Standardization and regulation of training of personnel and professionals in the field of Rehabilitation and Special Education.
8.	Medical Council of India (MCI)	• Establishment of standards in medical education and to define medical qualifications in India and abroad.
9.	Pharmacy Council of India (PCI)	• Prescription, regulation and maintenance of minimum educational standards for the training of pharmacists uniformly in the country.
10.	Indian Nursing Council (INC)	• Regulation and maintenance of uniform standards of training for Nurses, Midwives, Auxiliary Nurse-Midwives and Health Visitors.
11.	Dental Council of India (DCI)	• Regulation of the Dental Education, Dental Profession, Dental ethics in the country and recommend to the Government of India to accord permission to start a Dental College, start higher courses and increase of seats.
12.	Central Council of Homeopathy (CCH)	• Maintenance of the Central Register of Homeopathy.
13.	Central Council of Indian Medicine (CCIM)	• Maintenance of the Central Register of Indian Medicine.
14.	Council of Architecture	• Maintenance of the Central Register of Architecture.
15.	State Council of Higher Education	• Maintenance of State Institutions.

Quality in Higher Education

QUALITY ASSURANCE (QA)	QUALITY ENHANCEMENT (QE)
Focus on teaching	Focus on learning
Teaching as individual performance	Learning as social practice
Focus on monitoring / judgment	Focus on personal and professional development
Inflexible, non--negotiable, approach based on standards	Flexible, context--sensitive, approach based on building professional knowledge
Little acknowledgement of the links between teaching and research	Exploration of the links between teaching and research, through reflection on practice
Teachers as individual practitioners	Teachers as collaborators across disciplines
Emphasis on documentation	Emphasis on discussion

Constraints and Challenges

- Our education system faces a number of constraints and challenges—quality research is one of them.
- Barring few prestigious institutes, most display a dismal picture in terms of quality and quantity research.
- Not many institutes have mandatory research goals for individual faculty, and most do not have adequate systems or infrastructure for quality research.
- The lack of an encouraging academic environment, ill-equipped libraries, labs and equipment, inadequate infrastructure, lack of funds, faculty crunch, etc, are some of the factors contributing to the dismal picture of research in Indian academic institutions.

Need of the hour

- At this juncture, it is pertinent to develop an inbuilt research mechanism in our higher education system.
- The system needs to commit itself to both research and teaching excellence.
- In view of the fact that India possesses globally-acclaimed brain-power, the need of the hour is to create a encouraging environment for academic research in all centres of higher learning.

Higher education

Higher education plays an essential role in society by creating new knowledge, transmitting it to students and fostering innovation. Research-based education has lately received increasing interest both among researchers in higher education and in public discussion.

i. **Higher education as the production of qualified human resources:-** In this view, higher education is seen as a process in which the students are counted as "products" absorbed in the labour market. Thus, higher education becomes input to the growth and development of business and industry.

ii. **Higher education as training for a research career: -** In this view, higher education is preparation for qualified scientists and researchers who would continuously develop the frontiers of knowledge. Quality within this viewpoint is more about research publications and transmission of the academic rigour to do quality research.

iii. **Higher education as the efficient management of teaching provision.** Many strongly believe that teaching is the core of educational institutions. Thus, higher education institutions focus on efficient management of teaching-learning provisions by improving the quality of teaching, enabling a higher completion rate among the students.

iv. **Higher education as a matter of extending life chances.** In this view, higher education is seen as an opportunity to participate in the development process of the individual through a flexible, continuing education mode.

The four specific functions of higher education

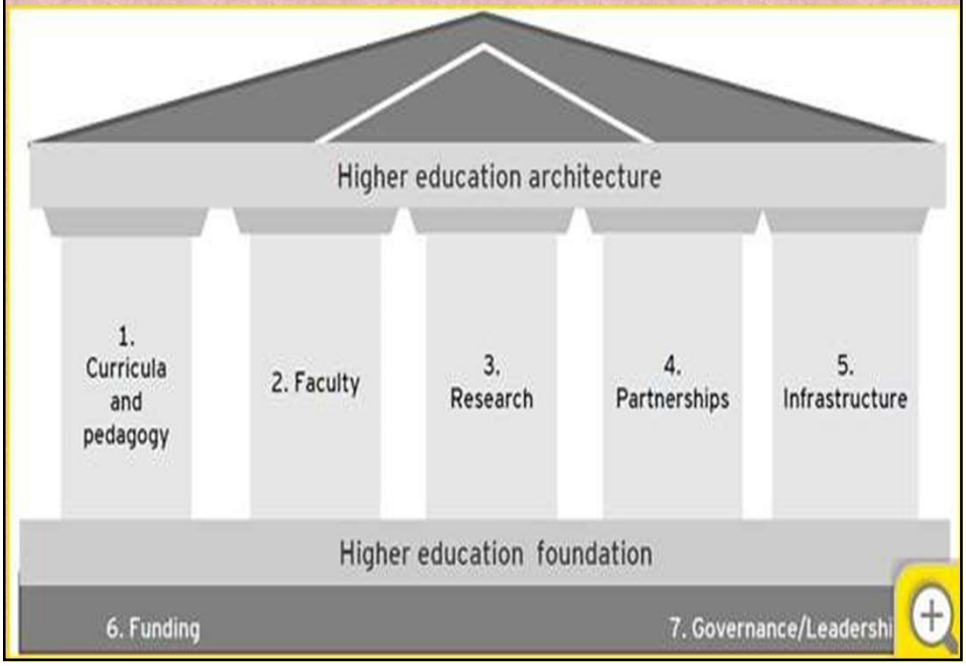
(1) To prepare students for research and teaching;

(2) To provide highly specialized training courses adapted to the needs of economic and social life;

(3) To be open to all, so as to cater to the many aspects of lifelong education in the widest sense; and

(4) To promote international cooperation through internationalization of research, technology, networking, and free movement of persons and scientific ideas

Important Pillars of higher Education



Importance of Research in Higher Education

There are three key elements that are driving force for revolution in higher education.

These elements are:

- Massification,
- Diversification and
- Research.

Massification

- The Massification, which **defines the increased admittance worldwide to higher education for the masses.**
- Higher education is now not just the preserve of the elite but is now both a right and a need for most people in developing countries.
- t is a need that comes from the bottom up; it cannot be controlled or mandated by governments. In the next 30 years, the key countries that will make up half the global enrollment in higher education will be China, followed by India.
- The U.S. pool is already almost saturated with about 75-80% of every of-age cohort entering the system for higher education.
- There are a few implications of massification.
  - First, there is now a divergence of higher education institutions; not all institutions of higher education can be universities.
  - Second, the greater diversity in the student populace.
  - Thirdly, the dropout or non-completion rates for higher education are more significant than ever. The new norm is that a four-year degree takes five to six years to complete.
  - Fourth, **Massification has led to a lower quality of higher education in all countries where it has occurred.**

- Although the standard of leading institutions has improved over the years, many higher education institutions face challenges regarding financial constraints, faculty quality and student diversity.
- Lastly, the growth of the private education sector has meant that most of the students in higher education study in private institutions that are of lack of quality education and majorly profit-oriented.
- The ***diversification*** in terms of disciplines taught in higher education growing along with development activities in the view of the future needs of society and humanity.
- The ***third area,*** **Research** which needs a generation of newer knowledge to sustain the development activities of the society.

Higher Education Institutions

The higher education institutes should have following objectives:

i. Inculcating a value system in students
ii. Promoting the use of technology.
iii. Fostering global competencies among students
iv. Contributing to national development
v. Quest for excellence

In higher education system, quest for quality due to following reasons:

(1) Competition
(2) Customer satisfaction
(3) Maintaining standards
(4) Accountability
(5) Improve employee morale and motivation
(6) Credibility, prestige and status
(7) Image and visibility

Why Indian Higher Education is Lacking in Research?

Common reasons:

- Poor or Insufficient Infrastructure.
- Lack of quality faculties
- Intake of poor quality students in higher education
- Insufficient support of government to education up to higher secondary level
- Less than adequate funding for research; necessary for innovation-driven society
- Inadequate collaboration between Academic and Industrial for society need-based research

Total No. of Universities

Total no. of university in the country as on 01-10-2020

- Central University-54
- State University-416
- Deemed University-124
- Private University-364

Total-958

- Only **7 Indian universities were ranked in the top 400 universities** by the well-regarded QS World University Rankings for 2019. And predictably, six of these seven are Indian Institutes of Technology (IITs). The only non-IIT Indian institution in the top 400 in the Indian Institute of Science (IISc) in Bengaluru.

Consequences of the Lack of Research in-country

- **Quality of Teaching and Research -** Teaching and research in any University depend on the quality of students and on the quality of their faculties. There are many universities in India, but scarcely 20 to 30 universities are considered to have faculty of high standing. An estimated 40% of college teachers work on a non-permanent, ad-hoc basis and are designated variously as temporary, contractual, ad hoc and guest faculty.

- **Pressure to Publish -** Even faculty who have been working for many years is under such circumstances that they have to produce a certain number of research/review papers to gain promotion. Thus, they often publish papers in journals that may not be of high quality. This also means that there is more importance on publication of papers than on teaching.

- **Quality of Student Intake -** Another important factor that may affect the quality of education is the level of students admitted. India's undergraduate students have graduated from higher secondary level schools (for 16 to 18-year olds). No serious attempt has been made by central or state governments to open any new higher secondary level schools for the past few decades. The only new such schools opened by central government are Navodaya Vidyalaya and Kendriya Vidyalaya (both of which are central schools).

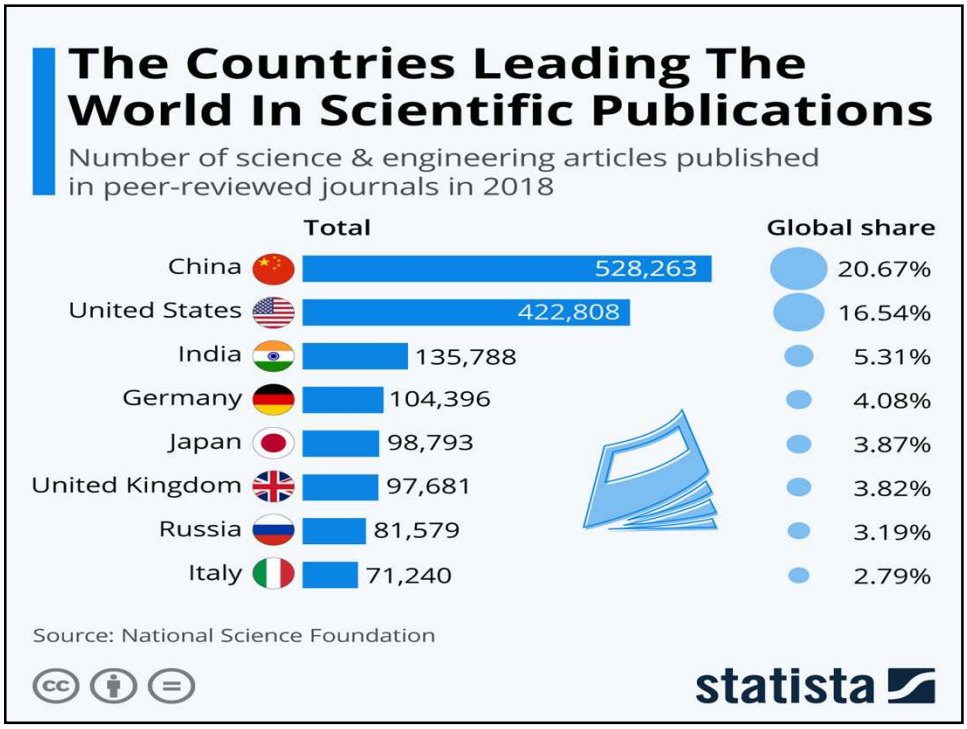
Global Research Output

The global research output, as measured by peer-reviewed Science and Engineering (S&E) journal articles and conference papers

- In 2008, the U.S. published 3,94,979 S&E articles in peer-reviewed journals, ahead of China's 2,49,049.
- China's rapid growth rate saw it publish 5,28,263 articles in 2018, ahead of U.S. output totaling 4,22,808.
- India came third in 2018 with 1,35,788.
- The European Unions' collective output came to 6,22,000 research articles, meaning it accounted for almost a quarter of the global total.
- China made up 20.67 percent while the U.S. accounted for 16.54 percent.

20 Countries Publishing The Most Scholarly Articles -2017

Rank	Country	Scientific and Technical Journal Articles Per Year
1	United States	412,542 articles
2	China	401,435 articles
3	Japan	103,377 articles
4	Germany	101,074 articles
5	United Kingdom	97,332 articles
6	India	93,349 articles
7	France	72,555 articles
8	Italy	66,310 articles
9	South Korea	58,844 articles
10	Canada	57,797 articles
11	Spain	53,342 articles
12	Brazil	48,622 articles
13	Australia	47,806 articles
14	Russia	35,542 articles
15	Iran	32,965 articles
16	Netherlands	30,412 articles
17	Turkey	30,402 articles
18	Poland	28,753 articles
19	Switzerland	21,060 articles
20	Sweden	19,362 articles



Publications Status -2019

Rank	Country	Documents	Citable Documents	Citations	Self Citations	Citations per Documents	H-Index
1	China	684048	669877	544310	379765	0.80	884
2	United States	678197	605796	582779	282855	0.86	2386
3	United Kingdom	212519	188259	207745	62486	0.98	1487
4	India	187014	173574	101838	47364	0.54	624
5	Germany	183640	167305	167682	55750	0.91	1298
6	Japan	132308	123834	83421	26821	0.63	1036
7	Italy	125709	113243	117534	43611	0.93	1030
8	France	118951	109099	104040	26734	0.87	1180
9	Canada	115384	104950	110142	26543	0.95	1193
10	Russian Federation	111820	108786	42097	21450	0.38	580
11	Australia	110579	100527	116738	32171	1.06	1001
12	Spain	100364	93133	87368	24670	0.87	904
13	South Korea	89544	86242	66127	18450	0.74	687
14	Brazil	84887	80430	45929	14720	0.54	578
15	Iran	64744	62836	54671	23561	0.84	329

Patent - Ranking

Rank	Country	Value	Year
1	China	1,393,815.00	2018
2	United States	285,095.00	2018
3	Japan	253,630.00	2018
4	Korea	162,561.00	2018
5	Germany	46,617.00	2018
6	Russia	24,926.00	2018
7	India	16,289.00	2018
8	France	14,303.00	2018
9	United Kingdom	12,865.00	2018
10	Iran	11,908.00	2018
11	Italy	8,921.00	2018
12	Korea	8,354.00	2012
13	Turkey	7,156.00	2018
14	Brazil	4,980.00	2018
15	Canada	4,349.00	2018

It is a monetary expression of inventions commercialized in a country by giving formal license or formal contract for manufacturing

The role and need of research in higher education

1. **Teaching will improve if the staff engages in research (research-based teaching):-** Necessity of research oriented teaching.

Educators engaged in research are updated with latest information and updated facts instead of all that is mentioned in a book years old. It is essential that teachers engage in research to come out with latest and original information but also when they expect students to be research oriented they must have familiarity with various aspects to the concept.

Educators familiar with research based teaching can help students with the following things:

- Teaching research results
- Making research known
- Showing what it means to be a researcher
- Helping to conduct research
- Providing research experience

The role and need of research in higher education –Contd…

2. Students will learn more if they come into contact with research (research-based learning): Students when involved in research based learning are bound to learn more and better than they would without the integration of research.

Students start as consumers of knowledge and move toward knowledge producers in the following eight steps.

•Students are provided with an overview of the basic facts, terms, and ideas related to the discipline.
•Students learn about research findings in the (sub) field through lectures and readings dedicated to current research.
•Students discuss and critique research findings and approaches in the discipline or (sub) field; assignments include literature reviews or summaries.
•Students learn some research methodologies; engage in limited applications of those approaches in course assignments, such as statistical analyses.
•Students learn in a course dedicated to the research methodologies, engage in extensive applications of a variety of approaches.
•Students engage in faculty designed and led original (to the student) research such as replications of existing studies.
•Students engage in faculty designed and led original research such as research related to faculty projects and/or conducted in faculty labs.
•Students engage in student designed and led original (to the discipline) research such as a senior thesis or capstone project

The role and need of research in higher education –Contd…

3. Professional practice will improve if professional workers in their training learn how to base their work on research-based knowledge (research-based practice):

This highlights the importance of hiring professionals who are familiar with research based practice. Having trainers who can help the current staff to make research based modules is also essential. To integrate the practice of research, it is important to learn how to base curriculum aligned to the practice of research.

4. Professional programs have an obligation to improve the knowledge basis of professional work through research (research-based knowledge production):

The main concern of this point is the importance of doing research to enhance 'evidence-based' knowledge. The need of this practice is to help students learn with hands-on experience and not just what's said and done but speak and do!

What to do for more research based teaching –learning

- Deciding that education and research are equally important.
- Appointing at least one university professor of research education.
- Establishing a university Centre for Teaching and Learning.
- Building a university Teaching and Learning House.
- Linking research and teaching committees.
- Bridging any divides between research staff and teaching staff.
- Appointing only academics who excel in both research and teaching.
- Strengthening positive attitudes towards research by students among staff and students.
- Making resources available for students to do research.
- Making it possible that libraries give information literacy instruction to students.
- Offering opportunities and incentives for teachers for further development of their 'research based' teaching competence and excellence.

What to do for more research based teaching –learning

- Creating and stimulating opportunities for dissemination of successful practices.
- Recognizing teaching excellence.
- Introducing an undergraduate student research award.
- Monitoring the growth of 'research-based' teaching.
- Ordering and financing more research of the teaching-research nexus and of research-based teaching and learning in particular.
- Academics can help students by engaging them in research to better develop highly valued competencies.
- More research-based teaching can also make teaching more attractive for academics and can make teaching instrumental to the academics' own research.

- Benefits of university research for students
- **It means teachers have up-to-date knowledge**
- **It turns professors into better teachers**
- **It encourages investment**
- **It informs textbooks and resources**

Indian higher education system

- Indian higher education system is the third largest in the world whereas several initiatives have been taken by the government to improve its ranking position.

The success of higher education institutions depends on many factors. One of the crucial factors is what is known as institutional research, popularly referred to as IR.

Research funding Agencies in India:

- University Grants Commission (UGC)
- Indian Council of Social Science Research (ICSSR)
- National Council for Educational Research and (NCERT)
- All India Council for Technical Education. (AICTE)
- Department of Science and Technology (DST)
- Department of Biotechnology (DBT)
- Council of Scientific and Industrial Research (CSIR)
- Defense Research and Development Organization (DRDO)
- Aeronautics Research & Development Board, Department of Atomic Energy (DAE)

- Department of Biotechnology (DBT)
- Department of Coal (DOC)
- Department of Ocean Development (DOD)
- Department of Science and Technology (DST)
- Department of Scientific and Industrial Research (DSIR)
- Indian Council of Medical Research (ICMR)
- India Meteorological Department (IMD)
- Indian Space Research Organization (ISRO)
- Department of Space, Ministry of Communications & Information Technology (MOCIT)

- Ministry of Environment and Forests (MOEF)
- Ministry of Food Processing Industries, (MFPI)
- Ministry of Non-Conventional Energy Sources (MNES)
- Ministry of Water Resources (MOWR)
- Ministry of Power, Central Power Research Institute (CPRI)
- Indian National Science Academy (INSA)
- Science & Technology for Weaker Sections (STAWS).
- Science and Technology Application for Rural Development (STARD).

The National Institutional Ranking Framework (NIRF)

The National Institutional Ranking Framework (NIRF) evaluates institutions on five broad generic groups of parameters, i.e.

- Teaching, Learning and Resources (TLR),
- Research and Professional Practice (RP),
- Graduation Outcomes (GO),
- Outreach and Inclusivity (OI) and
- Perception (PR).

Ranks are assigned based on total sum of marks assigned for each of these five broad groups of parameters

Weightage for different Parameters

Considering the fact that universities in India are essentially set-up for postgraduate education and research, it was decided to assign

- Higher percentage (40%) weightage to "Research Productivity, Impact and IPR",
- 30 % weightage to "Teaching, Learning and Resources",
- 5% weightage to "Graduation Outcomes",
- 15% weightage to "Outreach and Inclusivity" and
- 10% weightage to "Perception".

Weightages assigned for ranking of colleges were suitably modified.

Summary of Ranking Parameters for Ranking Universities

S. No.	Parameters	Marks	Weightage
1	Teaching, Learning & Resources (TLR)	100	0.30
2	Research Productivity, Impact and IPR (RPII)	100	0.40
3	Graduation Outcome (GO)	100	0.05
4	Outreach and Inclusivity (OI)	100	0.15
5	Perception (PR)	100	0.10

2.0	Research Productivity, Impact and IPR (RPII)	(Ranking Weightage =0.40)
	A. Combined Metric for Publications	45 Marks
	B. Combined Metric for Citations	45 Marks
	C. Intellectual Property Right	10 Marks

Summary of Ranking Parameters Colleges

Sr. No.	Parameters	Marks	Weightage
1	Teaching, Learning & Resources (TLR)	100	0.40
2	Research Productivity, Impact and IPR (RPII)	100	0.20
3	Graduation Outcome (GO)	100	0.15
4	Outreach and Inclusivity (OI)	100	0.15
5	Perception (PR)	100	0.10

2.0	Research Productivity, Impact and IPR (RPII)	(Ranking Weightage =0.20)
	A. Combined Metric for Publications	45 Marks
	B. Combined Metric for Citations	45 Marks
	C. Intellectual Property Rights	10 Marks

These rankings acts as a guide to students for selection of universities based on a set of criteria and helps universities to improve their performance on various ranking parameters and identify gaps in research and areas of improvement. The Ranking of Institutions at national level instill a competitive spirit amongst institutions to perform better and secure higher rank in international ranking.

Besides, sourcing data on various parameters from applicant institutions, third party sources of data have also been used, wherever possible. Scopus (Elsevier Science) and Web of Science (Clarivate Analytics) were used for retrieving publications and citations data. Derwent Innovation was used for retrieving data on patents. Data retrieved from these sources was shared with the institutions for transparency with a provision to give their inputs.

The NAAC criterion-wise differential weightages for the three types of HEIs are:

Curricular Aspects	150 (U)	150 (Au)	100 (Aff UG)	100 (Aff PG)
Teaching-learning & Evaluation	200 (U)	300 (Au)	350 (Aff UG)	350 (Aff PG)
Research, Innovations & Extension	250 (U)	150 (Au)	110 (Aff UG)	120 (Aff PG)
Infrastructure & Learning Resources	100 (U)	100 (Au)	100 (Aff UG)	100 (Aff PG)
Student Support & Progression	100 (U)	100 (Au)	140 (Aff UG)	130 (Aff PG)
Governance, Leadership & Management	100 (U)	100 (Au)	100 (Aff UG)	100 (Aff PG)
Institutional Values & Best Practices	100 (U)	100 (Au)	100 (Aff UG)	100 (Aff PG)

Distribution of weightages across Key Indicators (KIs)

Criteria	Key Indicators (KIs)	Universities	Autonomous Colleges	Affiliated/Constituent Colleges	
				UG	PG
3. Research, Innovations and Extension	3.1 Promotion of Research and Facilities	20	20	NA	NA
	3.2 Resource Mobilization for Research	20	10	15	15
	3.3 Innovation Ecosystem	30	10	NA	10
	3.4 Research Publications and Awards	100	30	15	25
	3.5 Consultancy	20	10	NA	NA
	3.6 Extension Activities	40	50	60	50
	3.7 Collaboration	20	20	20	20
	Total	250	150	110	120

To improve Research and Professional Practice (RP)

- Institutions should be given an adequate financial assistance to support its faculty & teaching staff for conducting research.
- Provide opportunities to faculty and teaching staff to present scientific papers in both regional and international conferences that will help to enhance the academic reputation of the medical school in which he or she belongs to.
- Enlighten the awareness among faculty members about SCOPUS and Web of Science indexed journal list and provide necessary information on research publications.
- Establish appropriate teaching load for academics and provide sufficient time to faculty to get engaged in both research and other community related activities.
- Define rewards criteria and provide incentives for those faculty who are publishing in highly indexed journals on a yearly basis.
- Secure benchmarking agreement with a comparable national and international partner institution for the conduct of joint research projects.
- Encourage students to conduct joint research projects with their faculty members.
- Conduct regular & periodic research training programs to faculty and students through national, regional and international partnerships.

Recommendations

(i) design rigorous and comprehensive evaluation criteria to recognize and reward high-quality scientific research;

(ii) require universal training in good scientific practices, appropriate statistical usage, and responsible research practices for scientists at all levels, with training content regularly updated and presented by qualified scientists;

(iii) establish open data at the timing of publication as the standard operating procedure throughout the scientific enterprise;

(iv) agree upon common criteria among scientific journals for retraction of published papers, to provide consistency and transparency; and

(v) strengthen research integrity oversight and training.

These recommendations constitute an actionable framework that, in combination, could improve the quality of research.

Higher education imparts in-depth knowledge and understanding so as to advance the students to new frontiers of knowledge in different walks of life. Higher education is seen as a process in which the students are counted as "products" absorbed in the labour market. Thus, higher education becomes input to the growth and development of business and industry.

The four specific functions of higher education are:

(1) To prepare students for research and teaching;
(2) To provide highly specialized training courses adapted to the needs of economic and social life;
(3) To be open to all, so as to cater to the many aspects of lifelong education in the widest sense; and
(4) To promote international cooperation through internationalization of research, technology, networking, and free movement of persons and scientific ideas.

Promoting a culture of research amongst faculty and students

i. **Faculty Recruitment:**
ii. **Seed Grant for New Faculty:**
iii. **Sabbatical Leave**:
iv. **ostdoctoral Fellowships**
v. **Travel Grants for Faculty and Students:**
vi. **Annual Faculty/Student Conclave in Social Sciences and Humanities:**
vii. **Fellowships for Ph.D. Scholars for Self-financed/ Minimal financial support on a Competitive Basis:**
viii. **Teaching Assistantship as Part of Doctoral Program:**

Thank you very much

Institutional Best Practices and New Education Policy

Prof. Dr. M. P. Poonia
Vice Chairman
AICTE
New Delhi

Quality Assurance is expected from the graduates coming out of the institute, how they are serving the society and the universe. Ours is big educational system, perfectly sound with 1000 university which is unparallel. Our technical institutes are 10500 plus with 32 lakhs can be admitted but only 18 lakhs are attracted remaining 14% of infrastructure is unutilized. Out of these 32 lakhs students, 13 lakhs are actually graduating and those who are getting job is very much less than that. One of the reasons behind that is outdated curriculum. The hands-on part is weak from the students' side and the teachers' side. Change rapidly. Attitude part of the student is week.

Quality of teachers should be improved. One-month industrial training should be provided to the new comers. Teachers training program should be provided in the emerging area which will improve the confidence. Ideas should be converted into useful products to the benefits of society.

Access the students in critical thinking, problem solving and decision-making which industry needed. Train the students from school level. Pressure of exam also been reduced with autonomy. Outcome based learning should be provided. Connect school, higher education and industry. Make students better than what industry wants. Industry will come to us if we are doing something for the betterment.

Outcome:

- Train the students from school level to achieve the betterment and quality assurance.
- Train the teachers to get updated frequently to compete with the technology to assure quality.

Standards and Innovative Mechanisms for Assuring Quality in Teaching-Learning Process

Dr. B. S. Madukar
Formerly Adviser and GC/EC member, NAAC
Founder Director, University of Mumbai,
Quality Assurance Cell

Higher education all over the world has been transforming into a student-centric approach. It is viewed that higher education must help a student not only in assimilating knowledge but also equip them with employable skills, thereby playing a larger role in nation-building. In other words, accountability of the education system to the society is expected to be vibrant and visible.

The united nation has articulated 17 sustainable development goals for the world and quality education is one among them. At the national level, after 34 years, the national education policy – 2020 has been unveiled. The policy envisages in the coming years far-reaching institutional changes from childhood to higher and adult education. Autonomy to institution and the use of technology in strengthening the teaching-learning process has been emphasized.

The current pandemic situation has fast-tracked the application of technology in various sectors including education in a matter of months would otherwise have taken a few years. Furthermore, the situation has added ambiguity in the type of skills and knowledge requirements for jobs likely to be created in the next few years.

Given the above circumstances, the relationship between teacher and the taught is increasingly under stress and calls for rapid all-round changes. Evolving broad-based innovative and dynamic teaching-learning mechanism complemented by simple and fair assessment process at the institutional level is need of the hour. Perhaps the teaching-learning process is to be tailor made to suit individual learner capabilities and also the broader societal needs. In essence, assuring quality in an institution may mean an accrual measurement of performance/success at individual levels of each student in conjunction with the role of faculty members and management.

In India, the higher education system to date particularly colleges are largely used to a top-down approach i.e., adhering to the curriculum set by the affiliating university and following rules and regulations of multiple regulatory bodies. It may now be required to adapt itself to a bottom-up approach i.e., to prepare itself for autonomy and be a self-changing entity.

Outcome:

- Should collaborate with others from different disciplines in the recognition that multidisciplinary approaches are necessary to address the major issues facing society.
- Learning outcomes should emphasize way in which the learner is likely to use the knowledge or skills gained.
- A teacher should suggest and not impose.

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Reactions
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Asst. Prof. Tinku Som... (Host)
Eldhose Varghese (Co-host)
Arunjith Unnikrishnan (Co-host)
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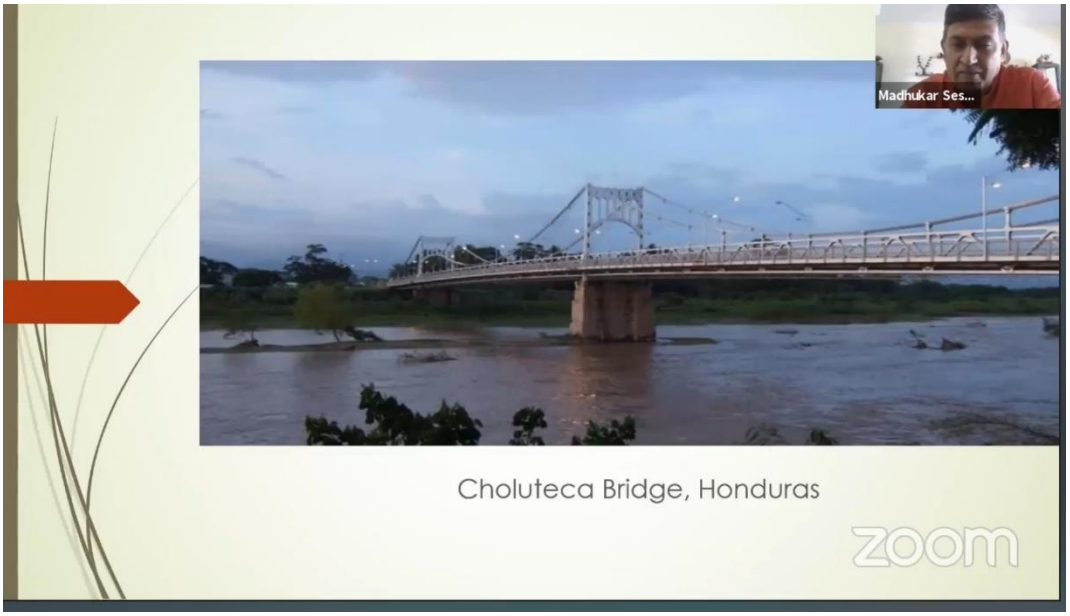
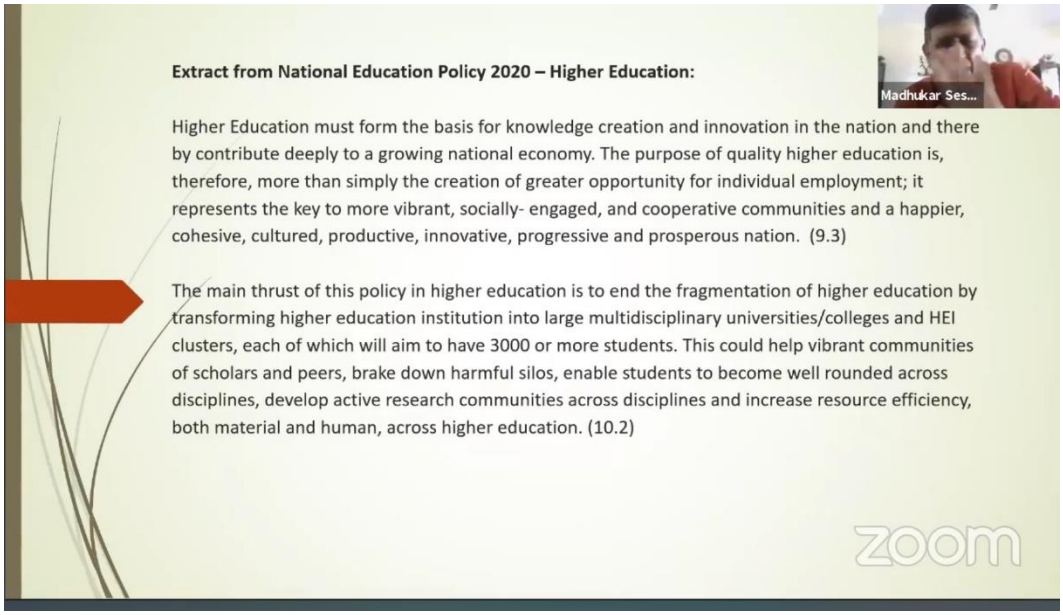
Madhukar Seshadri (Co-host)
priyankak040795@gmail.c... (Co-host)
Dr P. Sojan Lal, MBITS Kot... (Co-host)
Aswathy Sudhakaran
Invite
Raise Hand
13:07
11-12-2020

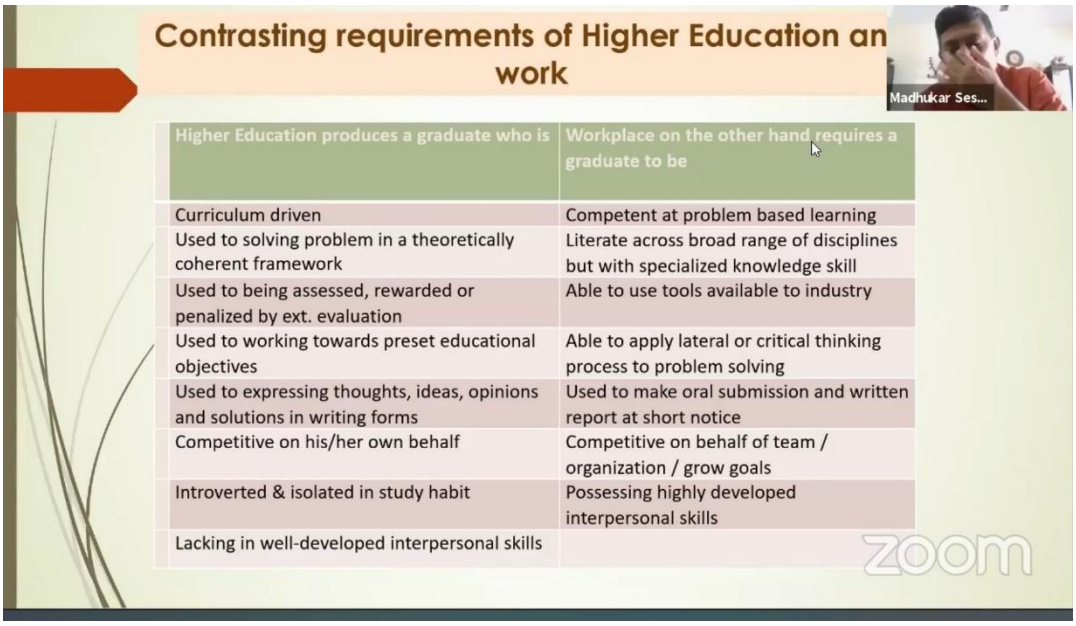
Madhukar Ses...
Welcome to the webinar
Organized by
MAR BASELIOS Institute of Technology And Science (MBITS), Kerala
Topic: Standards And Innovative Mechanisms For Assuring Quality In Teaching Learning Process
December 11, 2020
By
Dr.B.S.Madhukar
email: madhukar.seshadri@gmail.com
Mobile: 9448373681
zoom

Madhukar Ses...
United Nations (2030 Agenda)
Sustainable Development Goals
No Poverty
Zero Hunger
Good Health & Well-being
Quality Education
Gender Equality
Clean Water And Sanitation
Affordable And Clean Energy
Decent Work And Economic Growth
Industry, Innovation And Infrastructure
Reduced Inequalities
Sustainable Cities And Communities
Responsible Consumption And Production
Climate Action
Life Below Water
Life On Land
Peace, Justice And Strong Institutions
Partnership For The Goals
Source: sdgs.un.org/goals
zoom

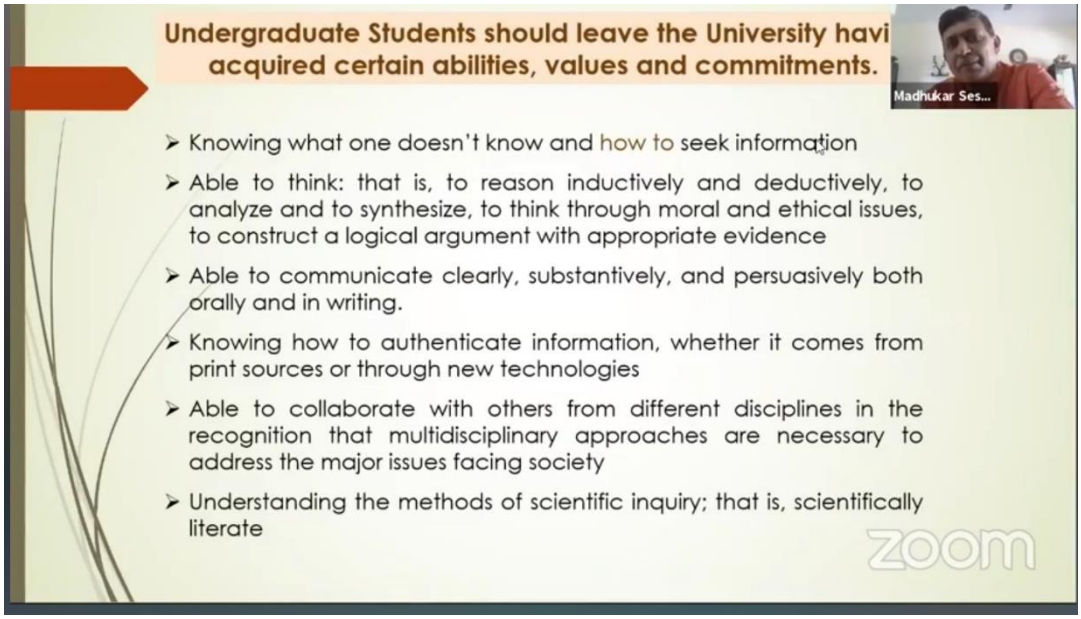

Madhukar Ses...
Choluteca Bridge, Honduras
zoom

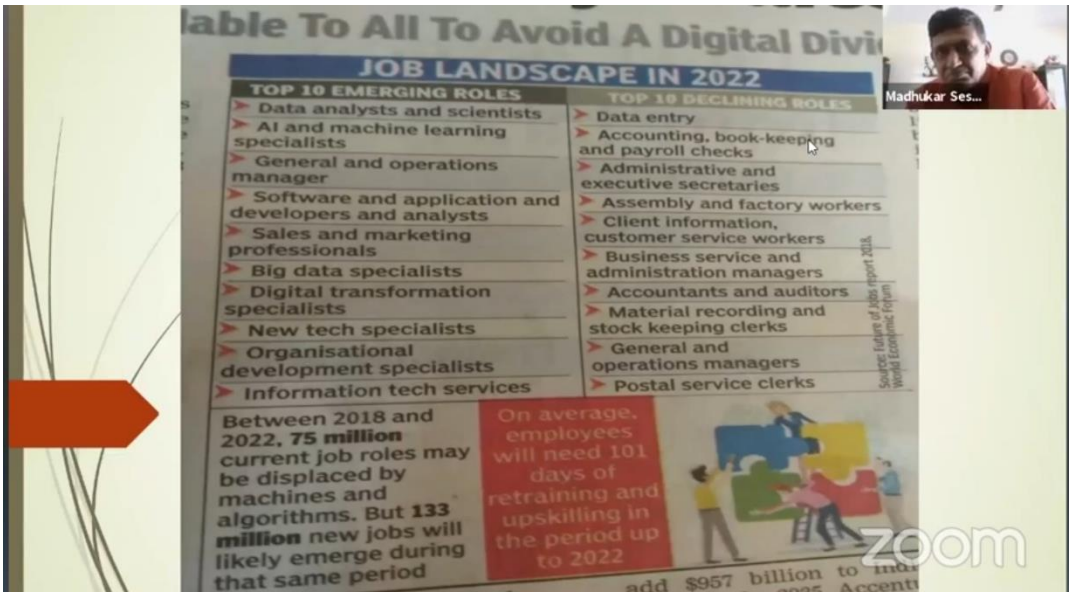
Madhukar Ses...
The Choluteca Bridge today (after 1998 Hurricane, Category 5 storm)
zoom



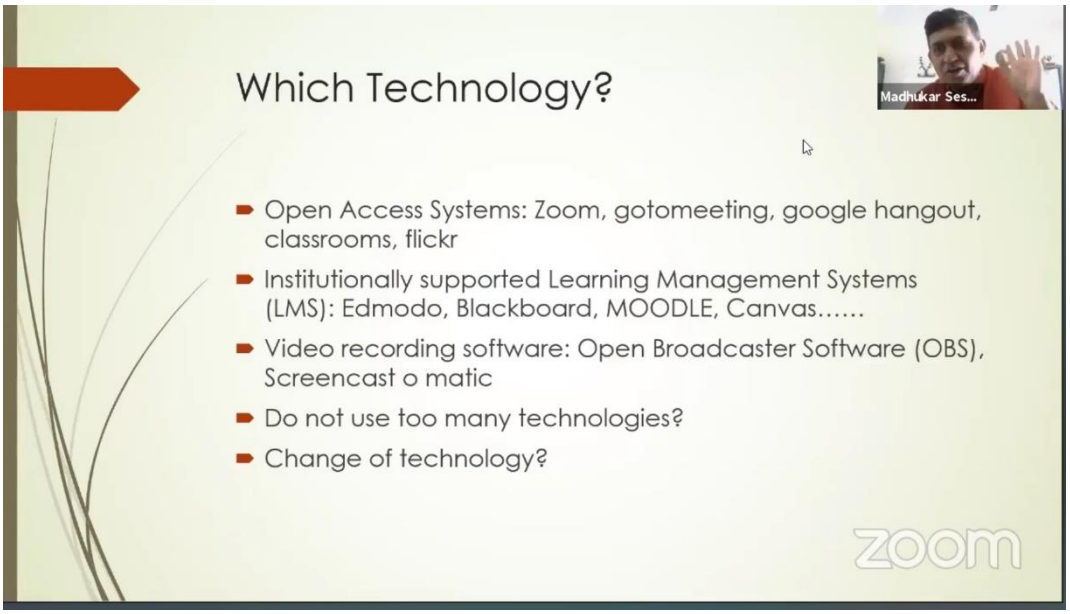


Higher Education produces a graduate who is	Workplace on the other hand requires a graduate to be
Curriculum driven	Competent at problem based learning
Used to solving problem in a theoretically coherent framework	Literate across broad range of disciplines but with specialized knowledge skill
Used to being assessed, rewarded or penalized by ext. evaluation	Able to use tools available to industry
Used to working towards preset educational objectives	Able to apply lateral or critical thinking process to problem solving
Used to expressing thoughts, ideas, opinions and solutions in writing forms	Used to make oral submission and written report at short notice
Competitive on his/her own behalf	Competitive on behalf of team / organization / grow goals
Introverted & isolated in study habit	Possessing highly developed interpersonal skills
Lacking in well-developed interpersonal skills	

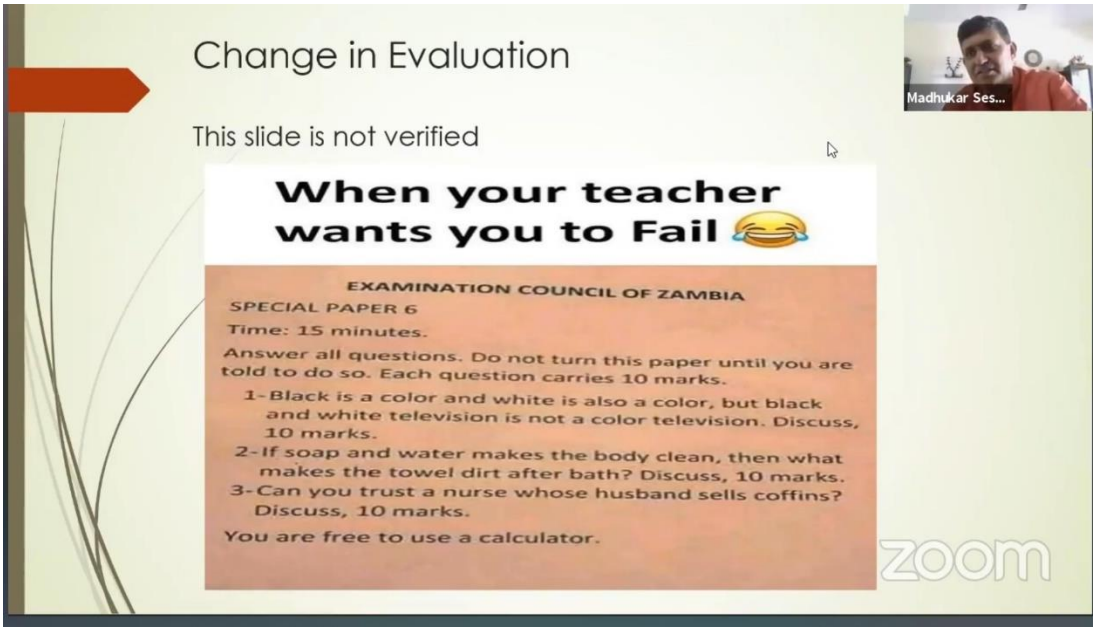

Undergraduate Students should leave the University havi
acquired certain abilities, values and commitments.
Madhukar Ses...
Knowing what one doesn't know and how to seek information
Able to think: that is, to reason inductively and deductively, to analyze and to synthesize, to think through moral and ethical issues, to construct a logical argument with appropriate evidence
Able to communicate clearly, substantively, and persuasively both orally and in writing.
Knowing how to authenticate information, whether it comes from print sources or through new technologies
Able to collaborate with others from different disciplines in the recognition that multidisciplinary approaches are necessary to address the major issues facing society
Understanding the methods of scientific inquiry; that is, scientifically literate
zoom

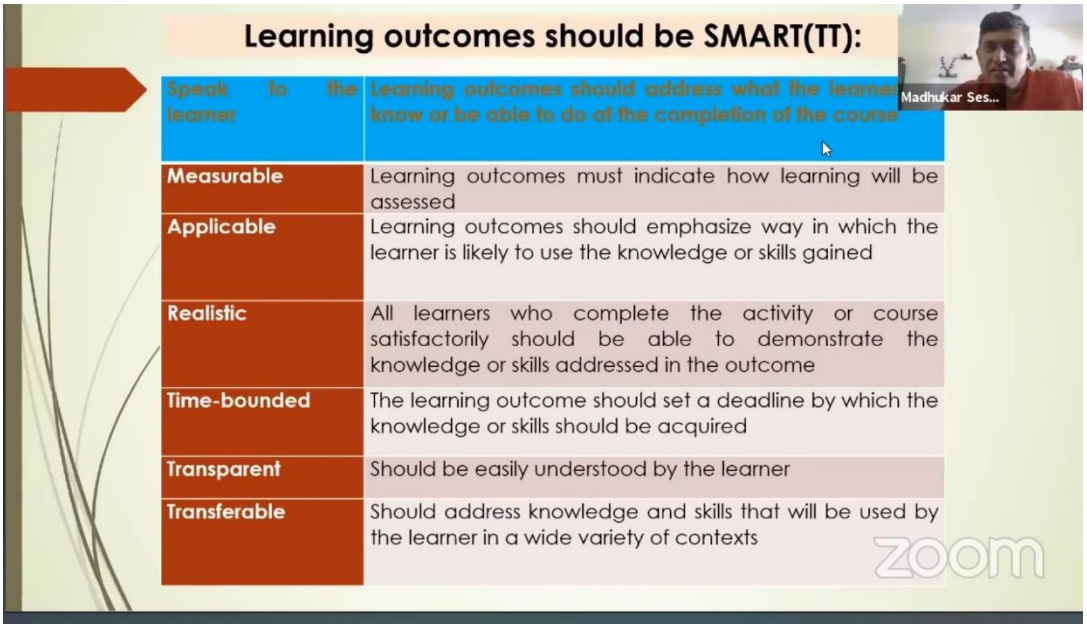

able To All To Avoid A Digital Divi
Madhukar Ses...
JOB LANDSCAPE IN 2022
TOP 10 EMERGING ROLES
Data analysts and scientists
AI and machine learning specialists
General and operations manager
Software and application and developers and analysts
Sales and marketing professionals
Big data specialists
Digital transformation specialists
New tech specialists
Organisational development specialists
Information tech services
TOP 10 DECLINING ROLES
Data entry
Accounting, book-keeping and payroll checks
Administrative and executive secretaries
Assembly and factory workers
Client information, customer service workers
Business service and administration managers
Accountants and auditors
Material recording and stock keeping clerks
General and operations managers
Postal service clerks
Source: Future of Jobs report 2018, World Economic Forum
Between 2018 and 2022, 75 million current job roles may be displaced by machines and algorithms. But 133 million new jobs will likely emerge during that same period
On average, employees will need 101 days of retraining and upskilling in the period up to 2022
add $957 billion to
zoom

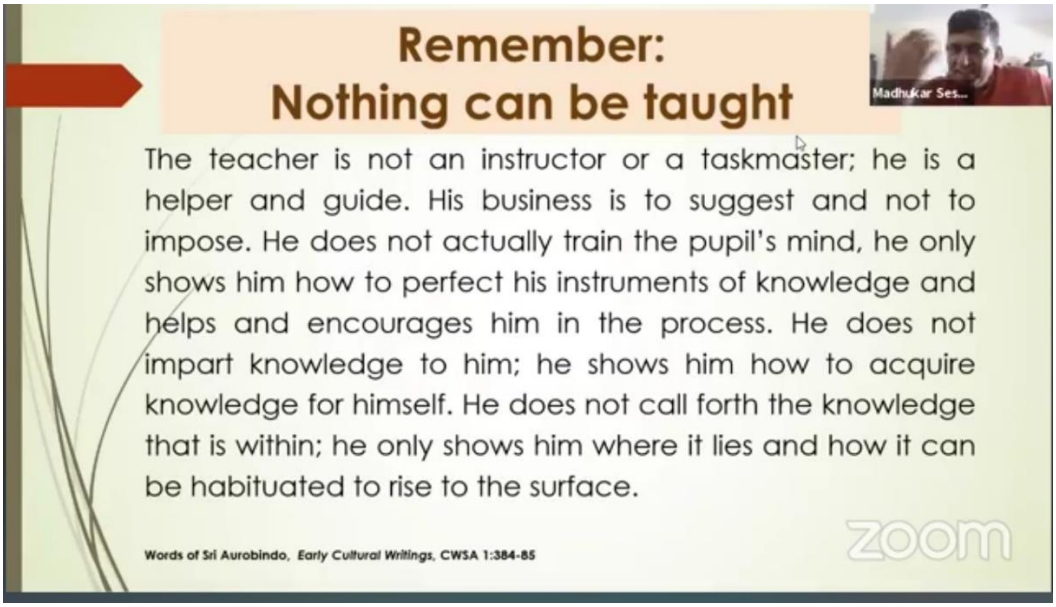
Madhukar Ses...
2009
2019
In just 10 years camera man & pilot both lost their jobs. UPGRADE YOURSELF
zoom

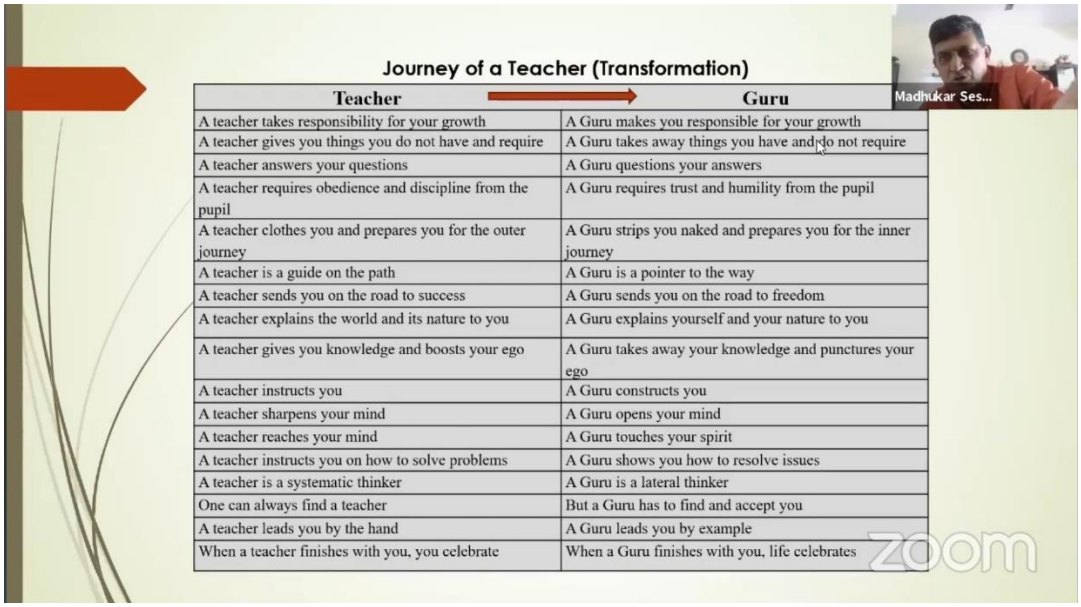

Madhukar Ses...
Which Technology?
Open Access Systems: Zoom, gotomeeting, google hangout, classrooms, flickr
Institutionally supported Learning Management Systems (LMS): Edmodo, Blackboard, MOODLE, Canvas……
Video recording software: Open Broadcaster Software (OBS), Screencast o matic
Do not use too many technologies?
Change of technology?
zoom

Madhukar Ses...
Massive Open Online Courses
Coursera (4000 courses)
Edx
Udacity (nano courses: skills)
etc.,
Indian
Swayam
e-PG pathashala
etc.,
zoom


Madhukar Ses...
Change in Evaluation
This slide is not verified
When your teacher wants you to Fail
EXAMINATION COUNCIL OF ZAMBIA
SPECIAL PAPER 6
Time: 15 minutes.
Answer all questions. Do not turn this paper until you are told to do so. Each question carries 10 marks.
1- Black is a color and white is also a color, but black and white television is not a color television. Discuss, 10 marks.
2- If soap and water makes the body clean, then what makes the towel dirt after bath? Discuss, 10 marks.
3- Can you trust a nurse whose husband sells coffins? Discuss, 10 marks.
You are free to use a calculator.
zoom


Learning outcomes should be SMART(TT):
Madhukar Ses...
Speak to the learner
Learning outcomes should address what the learner should know or be able to do at the completion of the course
Measurable
Learning outcomes must indicate how learning will be assessed
Applicable
Learning outcomes should emphasize way in which the learner is likely to use the knowledge or skills gained
Realistic
All learners who complete the activity or course satisfactorily should be able to demonstrate the knowledge or skills addressed in the outcome
Time-bounded
The learning outcome should set a deadline by which the knowledge or skills should be acquired
Transparent
Should be easily understood by the learner
Transferable
Should address knowledge and skills that will be used by the learner in a wide variety of contexts
zoom


Remember:
Nothing can be taught
Madhukar Ses...
The teacher is not an instructor or a taskmaster; he is a helper and guide. His business is to suggest and not to impose. He does not actually train the pupil's mind, he only shows him how to perfect his instruments of knowledge and helps and encourages him in the process. He does not impart knowledge to him; he shows him how to acquire knowledge for himself. He does not call forth the knowledge that is within; he only shows him where it lies and how it can be habituated to rise to the surface.
Words of Sri Aurobindo, Early Cultural Writings, CWSA 1:384-85
zoom


Madhukar Ses...
Journey of a Teacher (Transformation)
Teacher
Guru
A teacher takes responsibility for your growth
A Guru makes you responsible for your growth
A teacher gives you things you do not have and require
A Guru takes away things you have and do not require
A teacher answers your questions
A Guru questions your answers
A teacher requires obedience and discipline from the pupil
A Guru requires trust and humility from the pupil
A teacher clothes you and prepares you for the outer journey
A Guru strips you naked and prepares you for the inner journey
A teacher is a guide on the path
A Guru is a pointer to the way
A teacher sends you on the road to success
A Guru sends you on the road to freedom
A teacher explains the world and its nature to you
A Guru explains yourself and your nature to you
A teacher gives you knowledge and boosts your ego
A Guru takes away your knowledge and punctures your ego
A teacher instructs you
A Guru constructs you
A teacher sharpens your mind
A Guru opens your mind
A teacher reaches your mind
A Guru touches your spirit
A teacher instructs you on how to solve problems
A Guru shows you how to resolve issues
A teacher is a systematic thinker
A Guru is a lateral thinker
One can always find a teacher
But a Guru has to find and accept you
A teacher leads you by the hand
A Guru leads you by example
When a teacher finishes with you, you celebrate
When a Guru finishes with you, life celebrates
zoom

Madhukar Ses...
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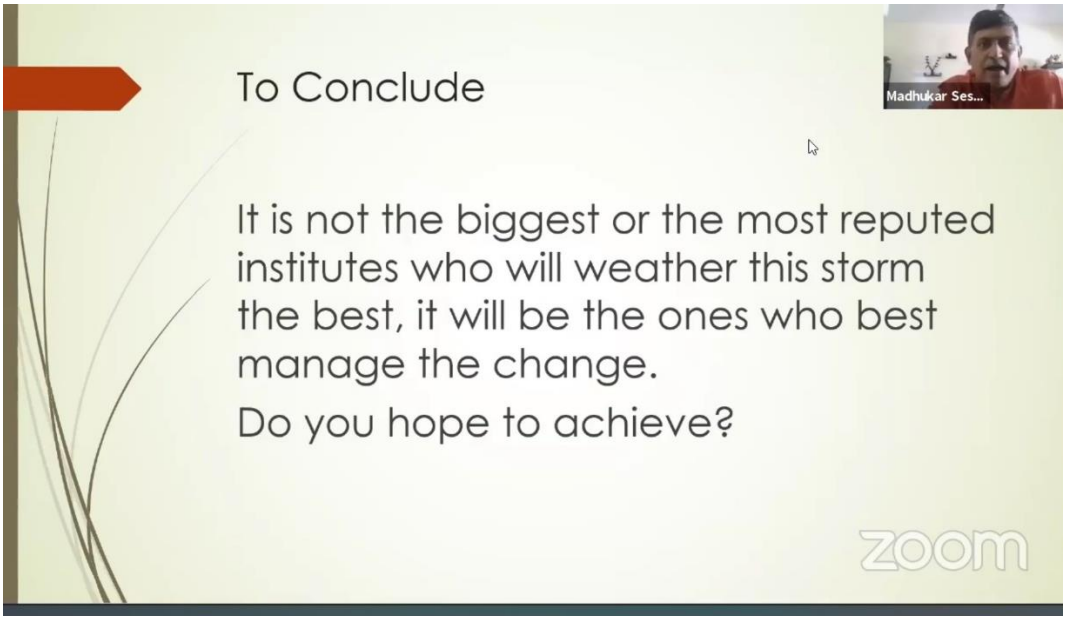
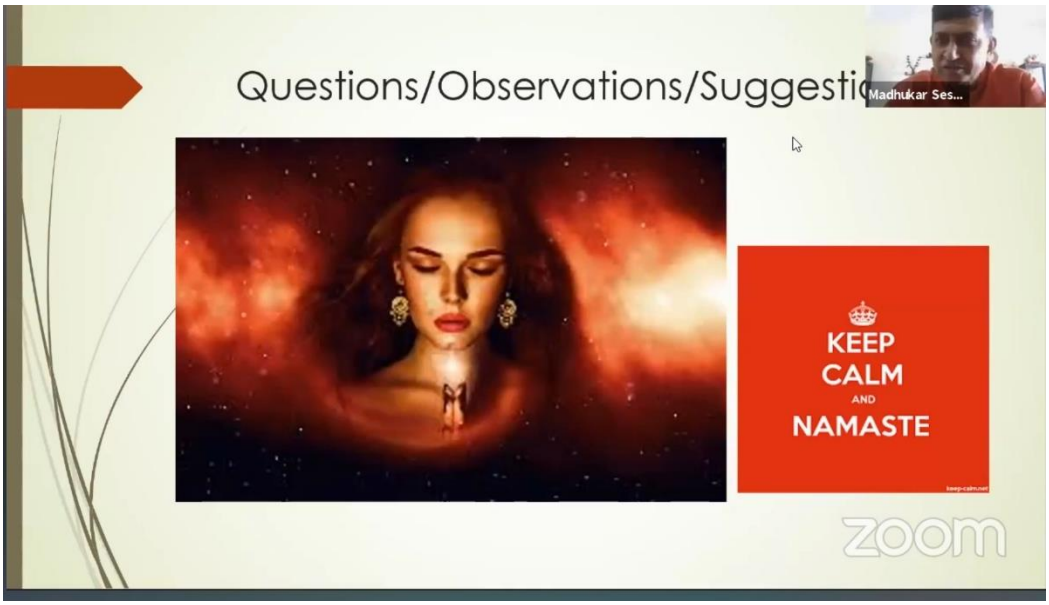

To Conclude
Madhukar Ses...
It is not the biggest or the most reputed institutes who will weather this storm the best, it will be the ones who best manage the change.
Do you hope to achieve?
zoom


Questions/Observations/Suggesti
Madhukar Ses...
KEEP
CALM
AND
NAMASTE
zoom

Skilling and Employability

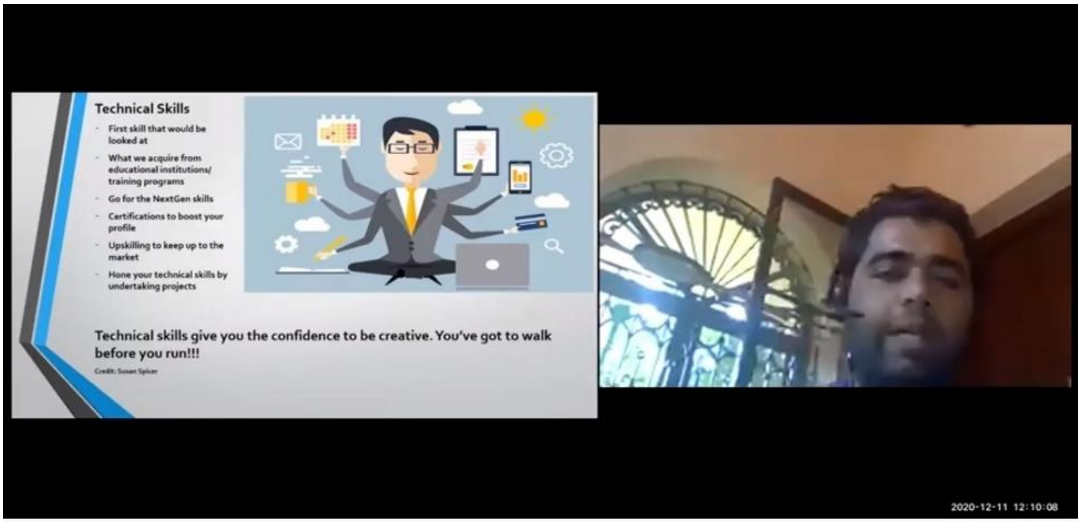
Mr. Arunjith Unnikrishnan
Assistant Director(HR)
Ernst & Young (EY)
Kochi, Kerala

Employability skills are sometimes called the foundational skills or job-readiness skills. Technical skills are the primary skills which will give us the confidence to be creative and these skills can be acquired from books, training institutions, organizations etc.

We all are different in the way we perceive the world and we may use this understanding to improve our communication skills. Being friendly and polite, listening and be patient, team works, respecting others viewpoints, accepting productive criticism are some of the points to improve our interpersonal skills. We also need some basic skills like integrity, positive approach, self-motivation, be adaptive to changes, display confidence, maintaining personal hygiene etc.

Outcome:

- Provide adequate training in market-relevant skills
- Bridge the gap
- Improve the overall scope and space for under developed sectors


Technical Skills
First skill that would be looked at
What we acquire from educational institutions/ training programs
Go for the NextGen skills
Certifications to boost your profile
Upskilling to keep up to the market
Hone your technical skills by undertaking projects
Technical skills give you the confidence to be creative. You've got to walk before you run!!!
Credit: Susan Spicer
2020-12-11 12:10:08

Skilling & Employability

Let's Break Some Ice

- What's the best thing that has happened to you during the lockdown?
- Who among the crowd here is a Youtuber?
- Do you really like online classes or you want to be back at the campus?

Technical Skills

- What we acquire from educational institutions/ training programs
- Go for the NextGen skills
- Certifications to boost your profile
- Upskilling to keep up to the market
- Hone your technical skills by undertaking projects
- First skill that would be looked at

Technical skills give you the confidence to be creative. You've got to walk before you run!!!

Credit: Susan Spicer

Communication Skills

- It's not just about English
- Practice is the best teacher
- Improve your vocabulary
- Not in accent, every country has one
- Listening and understanding
- Make it clear and avoid ambiguity
- Importance of reiterating
- Ask meaningful questions
- Eye contacts, handshakes, salutations, gestures, body language

To effectively communicate, we must realize that we are all different in the way we perceive the world and use this understanding as a guide to our communication with others

Credit: Tony Robbins

Your words have nothing to do with me, they simply tell me who you are

Credit: Dan O'connor

Interpersonal Skills

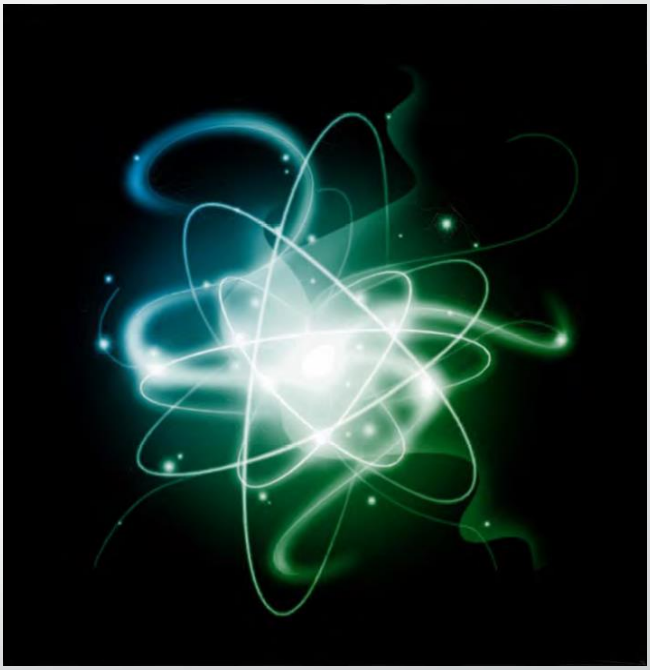
- Be friendly and polite
- Listen and be patient
- Be inclusive
- Be collaborative/ teamwork
- Be emotionally intelligent
- Respect others viewpoints
- Ask for feedback
- Accept productive criticisms
- Resolve conflicts amicably
- Networking

Basic

- Integrity (Top priority)
- Respect yours and others time
- Always be organized in doing things
- Have a positive approach
- Be self motivated
- Show your leadership abilities
- Be resilient and persistent
- Be adaptive to changes
- Prioritize things
- Display confidence
- Stress management
- Follow the dress code
- Be social and approachable
- Maintain personal hygiene

Energy

- **Physical energy |** Diet, sleep, exercise
- **Mental energy |** Bringing in more focus, yoga, meditation
- **Emotional energy |** Experience the positivity, enjoy, celebrate, laugh, smile
- **Spiritual energy |** Not related to religion but is more to do with our values and purposes. Find your why



Thank you & stay safe!!!

Connect via LinkedIn: Arunjith Unnikrishnan

Outcome of the Webinar

The stakeholders will be able to,

- Inculcate a value system and educate everyone to empower and transform the ideas.
- Foster global competencies among students and bridge the gap promoting the use of new technologies.
- Provide quality education to all, quest for excellence, learn to lead and contribute to national development.
- Provide adequate training in market-relevant skills, improve employee morale and motivation.
- Offer opportunities and incentives for teachers for further development of their ‘research based’ teaching competence and excellence.
- Collaborate with others from different disciplines in the recognition that multidisciplinary approaches are necessary to address the major issues facing society.
- Improve the overall scope and space for under developed sectors.
- Learning outcomes should emphasize way in which the learner is likely to use the knowledge or skills gained.

Follow up Actions

1. In order to introduce advanced courses like Data Science, Electrical and Computer Science, it is decided to reduce the student intake capacity of Mechanical Engineering and Civil Engineering branch.

2. The IIIC (Industry Institute Interaction Cell) has tied up with the state government (Kerala) to rejuvenate the rivers and associated water resource initiatives through students focused on improving the potential of students in dealing with real life problems.

3. Mandatory teachers' training for faculty with a teaching experience less than 5 years to be conducted under the guidance of experienced professors.

4. Teachers to be motivated to undergo technology related training programmes and courses to bridge industry standards.

5. An internal advisory body to be formed for analyzing the scope of syllabus revision and dynamic introduction of new courses for intimating the affiliated university, if a provision for the same arises at university and AICTE level.

Conclusions

The global pandemic of Covid'19 has affected our everyday life, and every sector be it industry, business, or education has been grimly affected due to the rampant spread of the virus. At the same time, this period has opened immense opportunities especially in the education sector, by virtue of the use of various electronic/technological applications. MBITS is embarked on organizing free webinars online, with the sole objective of making social impact by knowledge sharing, in partnership with Industry, Academia and Government of India and abroad, for the benefit of student community, academicians and aspiring engineers. The MBITS team along with other stakeholders provided free webinars for more than 11300 participants from more than 3000 institutions in India and abroad.

The national webinar on 'Quality Enhancement in Higher Education Institutions' covered a relevant theme which higher education is still facing and having difficulties to overcome. The excellent initiative and zeal shown by IQAC of MBITS to assemble the leading personalities in the field, towards the webinar and sharing the experiences to motivate the faculty, students and engineers to have in view Quality Enhancement were well appreciated. The net impact created by the programme has been enormous and will be transformative for many of the stakeholders. The feedback from the participants is highly encouraging and many more such programmes shall be conducted for improving the quality of HEIs. Such events go a long way in bridging the gap between industry and academia, which help MBITS to achieve many more milestones and attain greater heights in future.