## VISVESVARAYA NATIONAL INSTITUTE OF TECHNOLOGY, NAGPUR

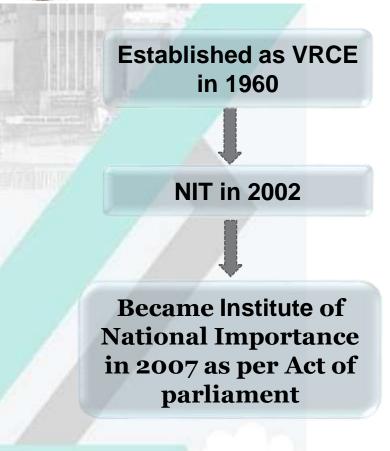






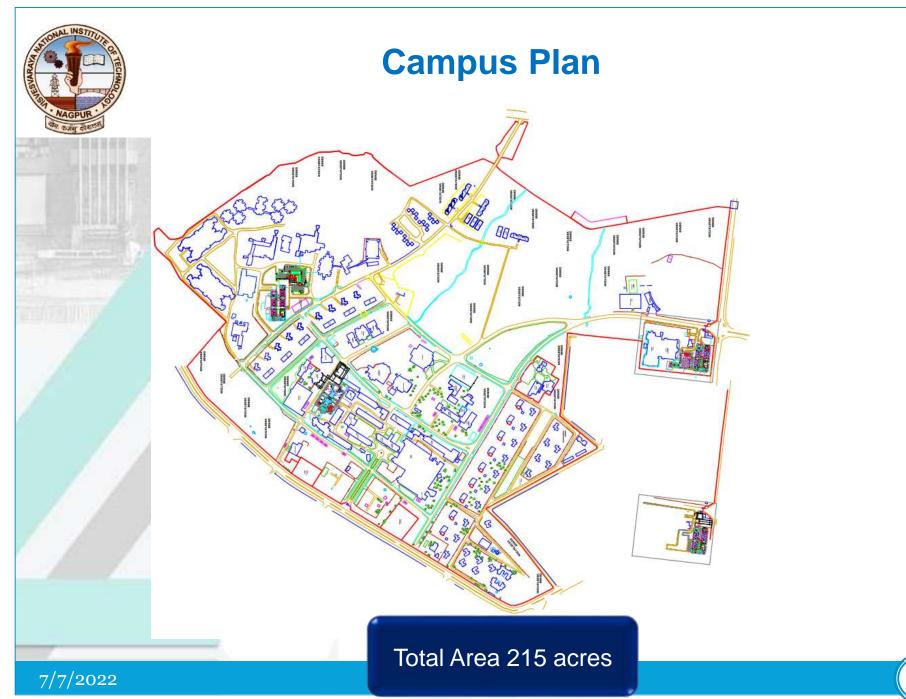
7/7/2022

# BACKGROUND



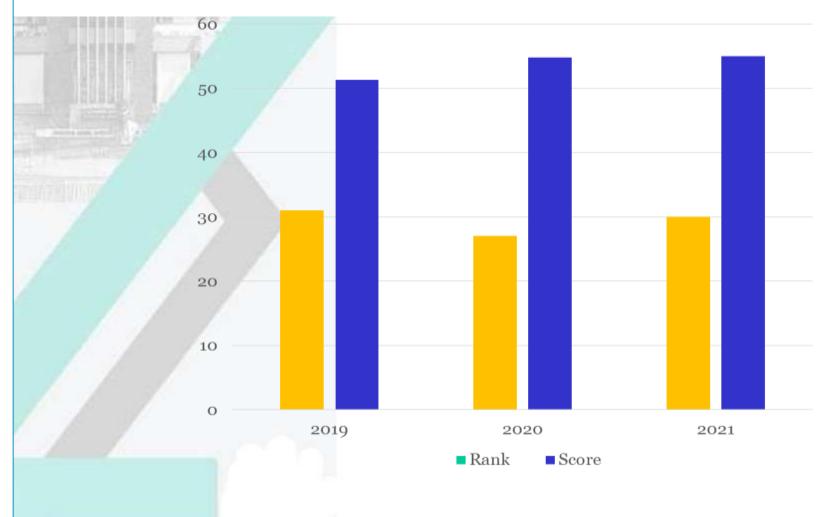
# Governance

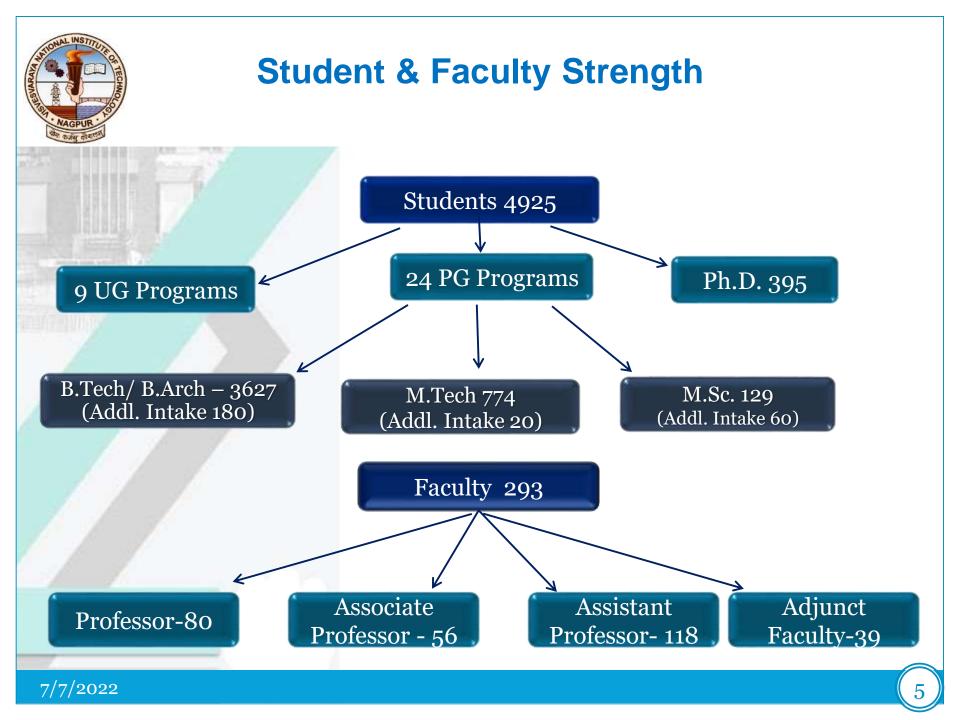
- NIT Council
- Board of Governors
- Finance Committee
- Building & Works Committee
- Stores Purchase Committee
- Senate
- Board of Studies
- Deans Committee
- HOD Forum
- APPEC
- Grievance Committee
- Women's Cell
- Wardens Council
- Security Committee





# **Continual Improvement in NIRF Ranking**





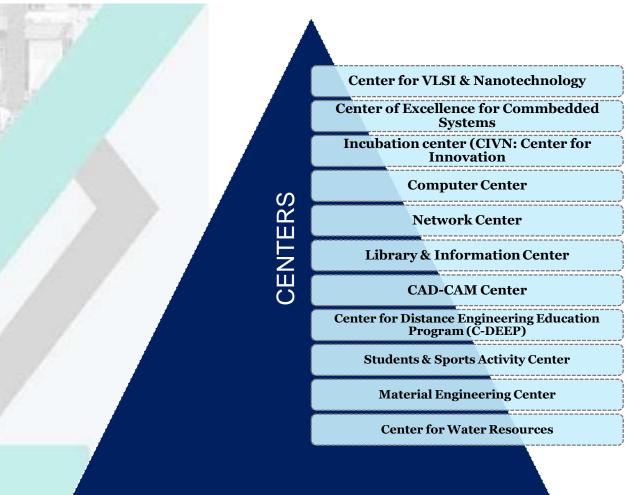


7/7/2022

6



# **Centers in VNIT**





# **INFRASTRUCTURE & FACILITIES**

Academic Block (G+6 Floor for faculty & PhD scholars)

Girls hostel (1000 capacity) with girls food-court and multiactivity complex



Twenty Five Virtual Classrooms

Boys hostel (1000 capacity) with boys food-court and multiactivity complex





7/7/2022

# INFRASTRUCTURE & FACILITIES Class Room Complex









9



7/7/2022

# **INFRASTRUCTURE & FACILITIES**



## Auditorium

10



Amphitheater



#### **VRJ Siemens Center**



# **INFRASTRUCTURE & FACILITIES**



Akshay patra Dining Hall









# **INFRASTRUCTURE & FACILITIES**





# **INFRASTRUCTURE & FACILITIES** Sports

- One Cricket Ground with six Turf wickets.
- One Football Ground with flood light arrangement.
- Two Volleyball Courts with flood light arrangement
- Three Lawn Tennis Courts.
- One Flood light Basketball Court.
- One Kho- Ko ground with flood light arrangement
- One Kabaddi ground with flood light arrangement
- Well equipped Gymnasium
- > The process of new gymnasium at HB-2 is also initiated with new gym equipments
- Cricket pavilion with the seating capacity of 500 students
- Indoor Badminton Stadium with four Wooden sprung Surfaced Badminton courts
- Two halls to accommodate at least 08 Table Tennis Tables
- A hall to practice Yoga



# **INFRASTRUCTURE & FACILITIES** Sports





# INFRASTRUCTURE & FACILITIES Gymnasium and Yoga Hall





# **Augmentation of Infrastructure**



10 feet Bronze statue of Sir M. Visvesvaraya with pedestal Inauguration by Shri Nitin Gadkari, Honorable Minister for Road Transport & Highways, Minister of Shipping and the

Minister of MSME in the Government of India on 9th January 2020.



# **Augmentation of Infrastructure**



WEST







7/7/2022

## **Mechanical Engineering Department-Facilities**



**Pneumatics and Hydraulics Lab** Sponsored by : **M/s Anand Mine Tools Nagpur** 



Hydraulic Test Bench







## **Mechanical Engineering Department-Facilities**



Surface EMG Machine



Bipolar surface electrodes

#### Bio-Mechanics and Machine Design Lab



Intra Oral Scanner for dental scan



250 kN servo hydrualic Universal testing machine with high temperature attachment

20



7/7/2022

#### **Mechanical Engineering Department-Facilities**



CNC Trainer Machines (Lathe and Milling)

FMS and Robotics Lab



AGV and ASRS with Cell Controller



IRB120 Robot with Robot Studio Software (50 User License)



SCORBOT ER-4u with SCORBASE Software



#### **Mechanical Engineering Department-Facilities**



CAD-CAM Center



Rapid prototyping machine Cost: Rs. 18 Lac (approx.).

#### BMV Agni-TC 24 /20 by BFW India Cost Rs 27.82 Lac (approx.)







#### Metallurgical & Materials Engineering-Facilities



INSTRON 8502 -100KN (Servo-hydrolic) Cost: Rs. 80 Lac (approx.)

INSTRON 8802-250KN (Servohydrolic) Cost: Rs. 106 Lac (approx.)





#### **Metallurgical & Materials Engineering-Facilities**



#### Scanning Electron Microscope (SEM/EDS)

Cost: Rs. 90 Lac (approx.) Used for the study of surface morphology,microstructure chemical composition, particle size determination by PG and research students.

#### STAR Creep Testing Machines

Cost: Rs.140 Lac (For 7 Machines) (approx.) Used for measuring high temperature strength of materials by PG and research students.





## **Metallurgical & Materials Engineering-Facilities**



#### X-ray Diffraction (XRD)

Cost: Rs. 105 Lac (approx.)

Used for identification of crystalline phases and orientation and to determine structural properties of material.





#### **Center For VLSI and Nanotechnology-Facilities**



## **RF Characterization Setup**

Cost: Rs. 119 Lac (approx.) Used to Characterize RF ICs and circuits (bare and Packaged) upto 27 GHz. Used by PG and research students.

DC Characterization Setup Cost: Rs. 48 Lac (approx.) Used for characterization of Devices and circuits (bare and Packaged) up to 100 Amp. Used by PG and research students.





## **Center For VLSI and Nanotechnology-Facilities**



Semiconductor Wafer Prober Cost: Rs. 80 Lac (approx.) Used for R&D, Project work. Useful for characterizing ICs with DC and RF probes by PG and research students.

#### HPC: High Performances Cluster Computation Servers Cost: Rs. 45 Lac (approx.)

Used for Nano simulations,





#### Electronics and Communication Engineering--Facilities

#### CAD FECO, IESD, HFSS, ADS, AWR Microwave office server. Cost: Rs. 40 Lac (approx.)



Protocol analyzer Cost: Rs. 20 Lac (approx.) Used for protocol validation of internet protocols.





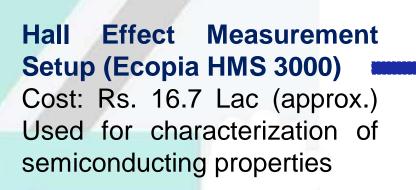


DISCOURSESSOR ANALYSIS.

7/7/2022

#### **Department of Physics-Facilities**

P-ELOOP TRACER



#### High Resolution Dielectric Analyzer

Cost: Rs. 26.17 Lac (approx.) Used for characterization of dielectric and electric conductivity of materials for research activities.

20



## **Department of Physics-Facilities**



#### Dilatometer

Cost: Rs. 11.6 Lac (approx.) Used for measurement of dimensional changes in glasses/ceramics as a function of temperature.

Spectroflurometer (Jasco FP8200) Cost: Rs. 12 Lac (approx.) This is Used for luminescence studies of materials by research and

PG students.





## **Department of Chemistry-Facilities**



#### Uwave-1000 Sineo

Cost: Rs. 16 Lac (approx.) Used for Synthesis of materials and used by PG and Research Students.

#### High Pressure Liquid Chromatography (HPLC) Cost: Rs. 30 Lac (approx.) 2535 quaternary gradient module: 2998 Photo diode RA detector. Used for Qualitative and quantitative analysis of waste

water pollutants..



## **Department of Chemistry-Facilities**

reaction



#### Shimadzu Gas Chromatograph (model GC14B) with FID and ECD detectors

Cost: Rs.15 Lac approx.) Used for organic compounds separation and identification. Used by PG and Research Students.

#### PARR High Pressure Reactor (model no. 4598) Cost: Rs. 18 Lac (approx.) This is used for catalytic high pressure and high temperature





## **Department of Applied Mechanics-Facilities**



#### **Servo Hydraulic Actuator Shake Table**

Cost: Rs. 56 Lac (approx.)

This is used for dynamic testing of prototype structures for real earth quake motions by simulating the earth quake motions by PG and research students and also for consultancy work.



## **MAJOR RESEARCH PROJECTS**

Sr. No	Funding Agency	Project Title	Amount (Rs. in Lacs)
1		Round Robin Testing for generation of Creep data of Indian Advanced Ultra Supercritical Power Plant Materials	618.97
2	AUSC Mission Directorate	Generation of Haigh Diagram for Alloy 617M for Indian Advanced Ultra Supercritical Power Plant	414.11
3		Round Robin Testing for generation of Low Cycle Fatigue data of the Indian Advanced Ultra Supercritical Power Plant Materials	581.39
4	DST-CCP	Capacity Building for Climate Change Adaptation and Mitigation with Special Focus on Sustainable Habitat and Risk Management	115.88
5	DST and 5 industries	SMART Foundry 2020	134.52



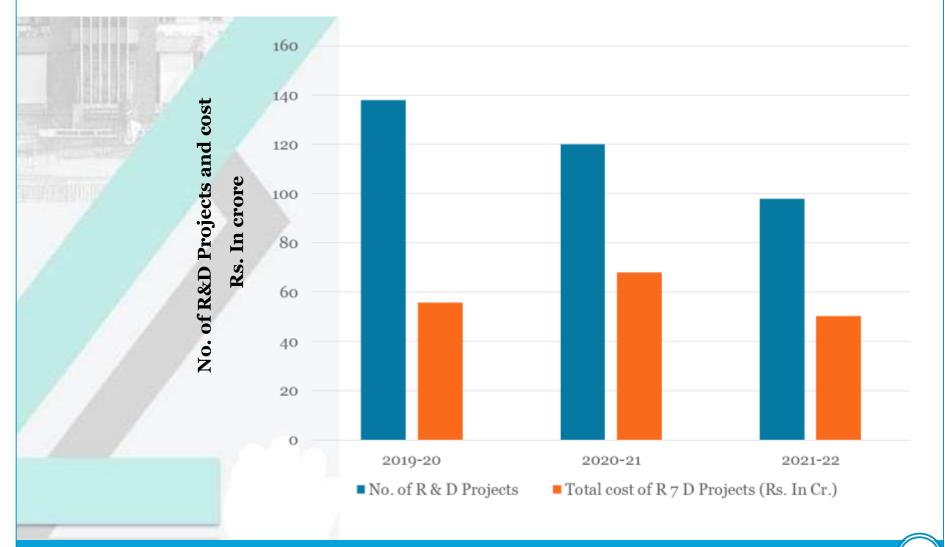


## **MAJOR RESEARCH PROJECTS**

Sr. No	Funding Agency	Project Title	Amount (Rs. in Lacs)
6	Coal India Ltd.	Slope Stability of Benches in Open cast coal mines	130
7	Convergence Comm. & Broadband techno. (CC&BT)	6G wireless technology	64
8	DST-TMD	Flexible Solid-state Supercapacitor device	60.63
9		Risk investigations for slope failure of benches and dumps using geo-technical characteristics	56.215
	Northern	of rocks and their monitoring mechanism in Jayant opencast mine	
10	Coalfields Limited (NCL)	Risk investigations for slope failure of benches and dumps using geo-technical characteristics of rocks and their monitoring mechanism in	51.40
		Dudhichua opencast mine	



# **Major Research Projects**



36



# **MAJOR RESEARCH PROJECTS** Khadi and Village Industries Commission (KVIC)

- Worked as a Technical Interface of KVIC for rural Industrialization (For northern and eastern Maharashtra and Chhattisgarh) from 2003.
- Developed number of technologies for the improvement of quality and productivity of rural based activities, reduction of fatigue and generation of women and youth employment in rural areas.
- Dr. D.R. Peshwe, Dean (FW) is nominated on Central Committee of KVIC.
- Exhibition Hall having KVIC Technologies









Mosquito repellent Coil Manufacturing Machine





Dhoop Stick Making Machine

Modified Double Roller Gin



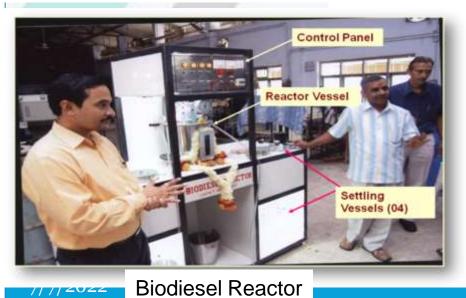
Laminates







#### **Rural Blacksmith Furnace**





#### Agarbatti Making Machine



Use of Gobar Gas in Diesel Engine





**Technology Under Incubation** 

- "Sustainable Construction Material Using Agro-industrial Byproducts":to identify and mainstream a basket of innovative construction technologies from across the globe for the housing construction sector that is sustainable, eco-friendly, and disasterresilient.
- "Development Of Forced Draft Biomass Cookstove":
- 1) The product is connected with day-to-day life of rural people.
- 2) Will have profound impact on the lives of rural women and children in terms of health and safety.
- 3) Will save a lot of petroleum products needed as a replacement of the solid biomass cooking practices. This is more important for petroleum deficient countries like India.





**Technology Under Incubation** 

## **Flyash To Sand Plant:**

- 1. Replacement of river sand by flyash sand, hence Environmental benefit.
- 2. Reducing cost of Sand by utilization of waste flyash in Construction work

#### **Bajrang Ban**

A unique decomposer for agri residue with C/N more than 50, digests in 21 days.

The decomposer is validated on paddy straw, cotton stalk, bamboo dust, sugar cane trash,coconut leaves across various geographical locations.

The product contains unique and optimised composition of microbial consortia which has been patented and commercialized. The decomposer multiplies within two days and helps in on-farm decomposition. The decomposer is capable of producing useful enzyme concoction.





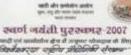




# Best S & T Innovator Award from Govt. of India at Vigyan Bhavan, New Delhi







at east add georee aga from any \$ 1

Manuff and Village Solution Converting of Solution

GOLDEN JUBILEE AWARD -2007 continent for Enveloper in the field of Roads and Village Industrying Wester Systematics. National Geneticited

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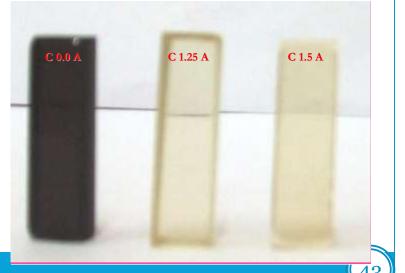




The radiation resistant glasses after exposure to gamma radiation. The black one is without cerium oxide and the other two are the optimized compositions of the glass developed by VNIT.

## **Radiation Resistant glasses**

Prof. Vilas Deshpande handing over the Radiation Resistant glasses to Dr. T. Jay Kumar, Director, Metallurgy Materials Group, IGCAR, Kalpakkam on 22-3-2010.

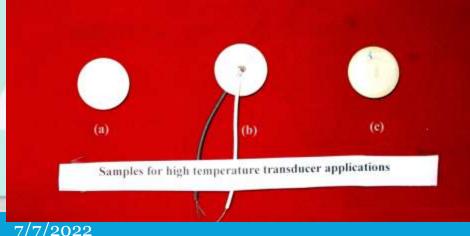




# Ferroelectric glass-ceramic samples for high temperature transducer

Dr. Vilas Deshpande (left) handing over the newly developed material for high temperature transducer to Dr. Vasudeo Rao, Director I.G.C.A.R., Kalpakkam





Ferroelectric glass-ceramic samples for high temperature transducer applications developed by Physics Department VNIT.





#### **Research in Bio-Medical Engineering-Team**

#### Faculty and Research Scholars

Dr. P. M. Padole
Dr. A. M. Kuthe
Dr. (Mrs.) R. V. Uddanwadiker
Dr. A. S. Dhoble
Dr. A. B. Deoghare
Dr. V. V. Shukla
Dr. Chetan Kuthe
Dr. Pooja Jhunjhunwala
Dr. Tushar Kulkarni
Dr. Abhishek Thote
Mr. Suraj Shembekar

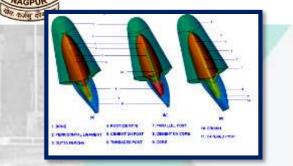
#### Associations with Doctors

- Dr. H. M. Mardikar
- Dr. S. Deshpande
- Dr. S. J. Batra
- Dr. P. Barad
- Dr. V. Bagharia
- Dr. S. Subramaniam
- Dr. H. Arya
- Dr. D. Dakshindas
- Dr. S. Jagtap
- Dr. Satish Deopujari
- Dr. Subhash Lulay
- Dr. Ookhalkar





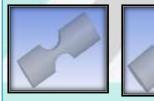
## MAJOR RESEARCH PROJECTS-Achievements Bio-Medical Engineering- Case Studies



#### Analysis of Dental Structure

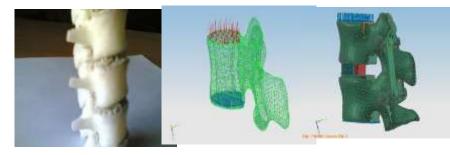


#### **Development of Surgical Guides**

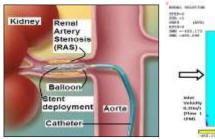


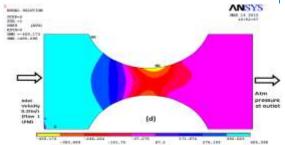


Analysis of Blood Flow through Arteries



#### Lumbar Spine Fusion Process





#### Renal Artery Stenosis and Stenting





Rhinoplasty forceps





#### Technology Transfer -15

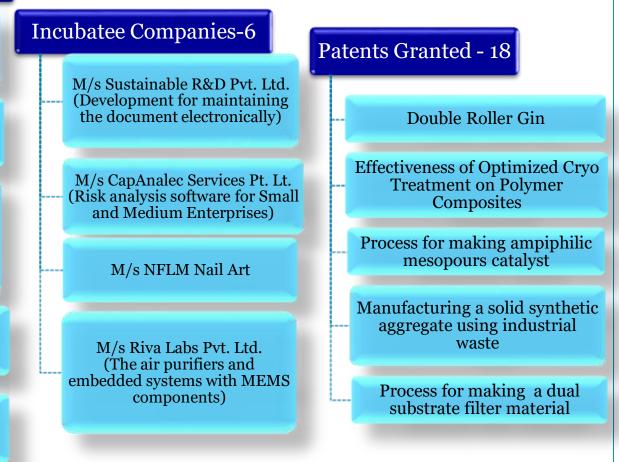
Duct cleaning robots (Nirmitee Robotics India Pvt. Ltd.)

Implant design for nose surgery (Om Surgicals, Mumbai)

Micro fine Neem Biopesticides (M/s Ganga Org, Jodhpur, Indochem Chem., Aurangabad, Ecoloque Scie Tech, Nagpur

Error compensation tech. In industrial metering (M/s Koyana Engg. Pvt. Ltd.)

Condition Monitoring Performance of Power Transformer (Tesla Trans. Ltd., Bhopal)





## MAJOR RESEARCH PROJECTS-Achievements Technologies Transferred



Dhoop Stick Making machine

7/7/2022



Development of heat efficient stoves for the rural applications





#### Rhinoplasty forceps



**Rural Blacksmithy Furnace** 



Mosquito Repellent Coil Making Machine



49



7/7/2022

#### **MAJOR RESEARCH PROJECTS-Achievements**

#### Some of the Patents



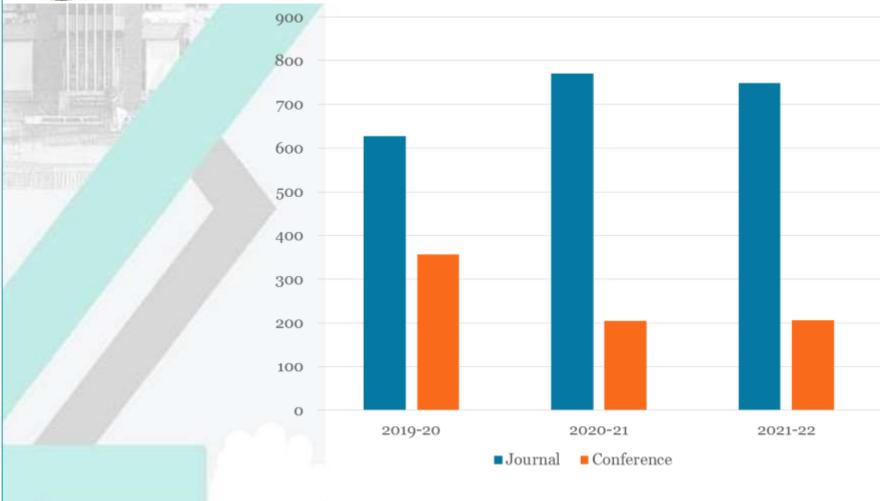
#### **Rapid Reconfigurable Modular Robot System**



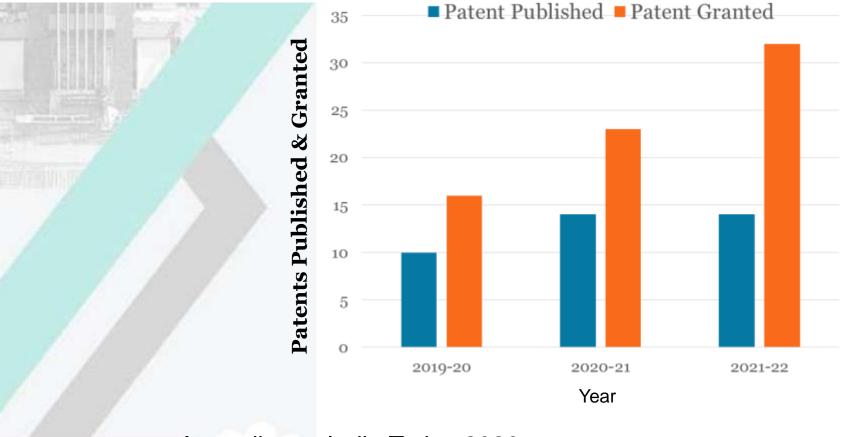
Assistive Device for Navigation in the Dark or No-visibility Ambience

50









According to India Today 2020:

- 1<sup>st</sup> rank in patents licensed
- 4<sup>th</sup> rank in patents published in past three years

7/7/2022

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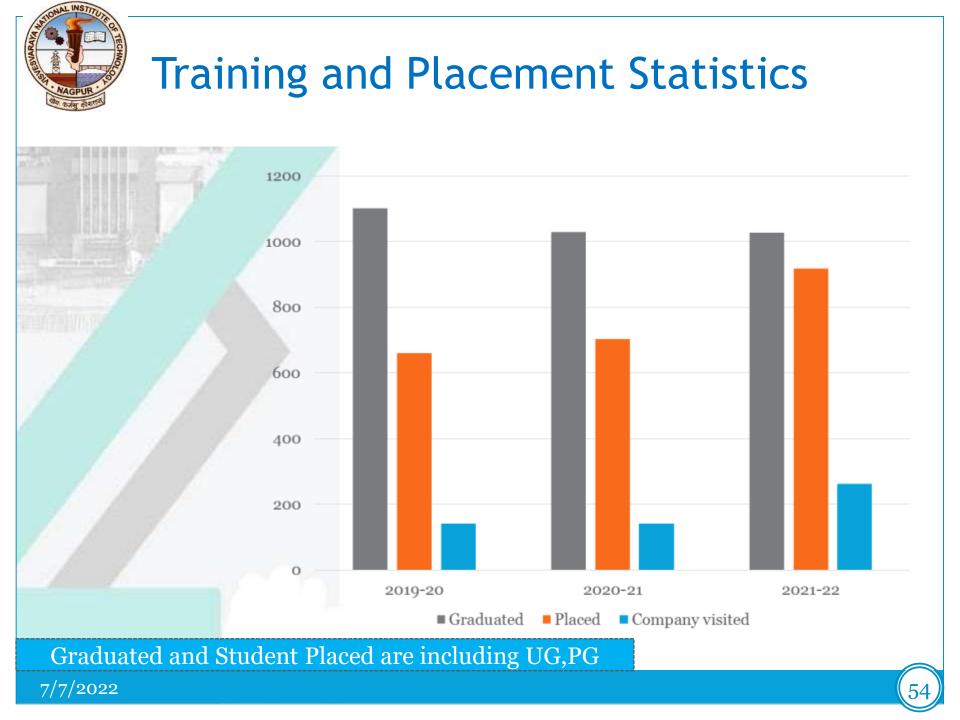


## Training and Placement Our Recruiters



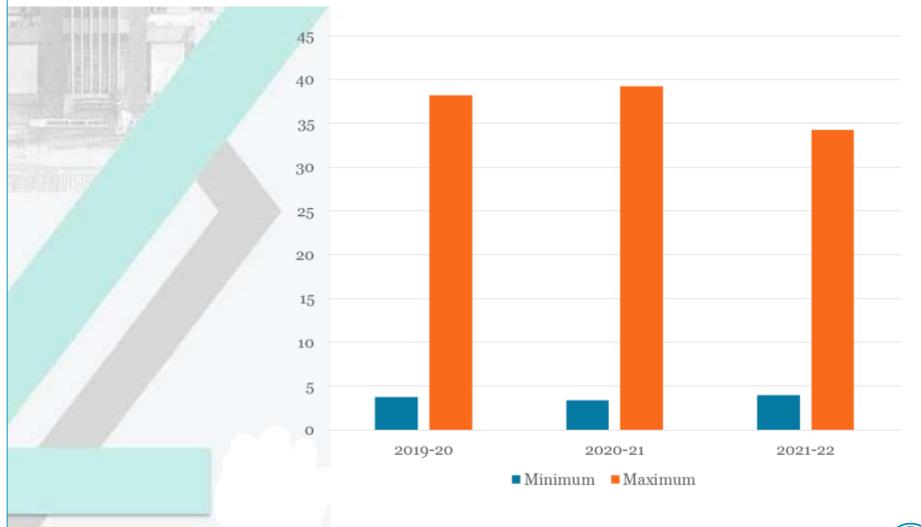
Microsoft	Mindtree 🕼		MDHANI	<b>MISYS</b>	MorganStanley
NISN MARK STREET		NOKIA	NOVATECH	SUPPORT.	** Numerify
Parker	PEPSICO	P	Pidilite	praj	<b>IPRAXAIR</b>
Raymond	RELIANCE	Reliance	A Reliance	RELIVICE TECHNOLOGIES	researchwird
🗲 Sapient'	Schneider	Shapoorji Palanji	A SHV Energy	SIEMENS	
ST.M Constants	Subres	SULZER	SUNFLAG	SUZLON	symantec.
Tech Mahindra	TESCO	THERMAN	Thought/Abrks	ThyssenKrupp 🎯	
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FinlQ	Wet a weeks	fiserv.	FLUOR,	Goldman Sachs	Honeywell
F	PACTSET	FCS	(FIAT)	Goorej	
EMERSON		ESSAR	EXL		
DIFFUSI	FIT-N	ELPRO	emami	ClaurSmithQne	HONDA
\$	Deloitte,	BHL.	DIEBOLD	Ginger	U
٧	G	and the	Cybage	🌀 Geometric	
Cargill	2158#	CMR	cîti	GM	







# Placement Package



7/7/2022

55



2022

# Industry Institute Interaction Memorandum of Understanding (MOU)

# **Objectives of MoU-**

- To augment knowledge of students and Faculty members
- Industry driven Research and Development activities
- Faculty (Guest lectures) and student exchange (Final year projects).
- Sharing of infrastructure and domain knowledge



Centre of Excellence in Collaboration with Dassault Aviation" A French aircraft manufacturer.





Ministry of Road Transport & Highways (MoRTH), New Delhi and Indian Roads Congress (IRC), New Delhi



#### **AIIMS Nagpur**







MOU with ISRO regarding setting up of STiC, Space Technology Incubation Centre at VNIT

60











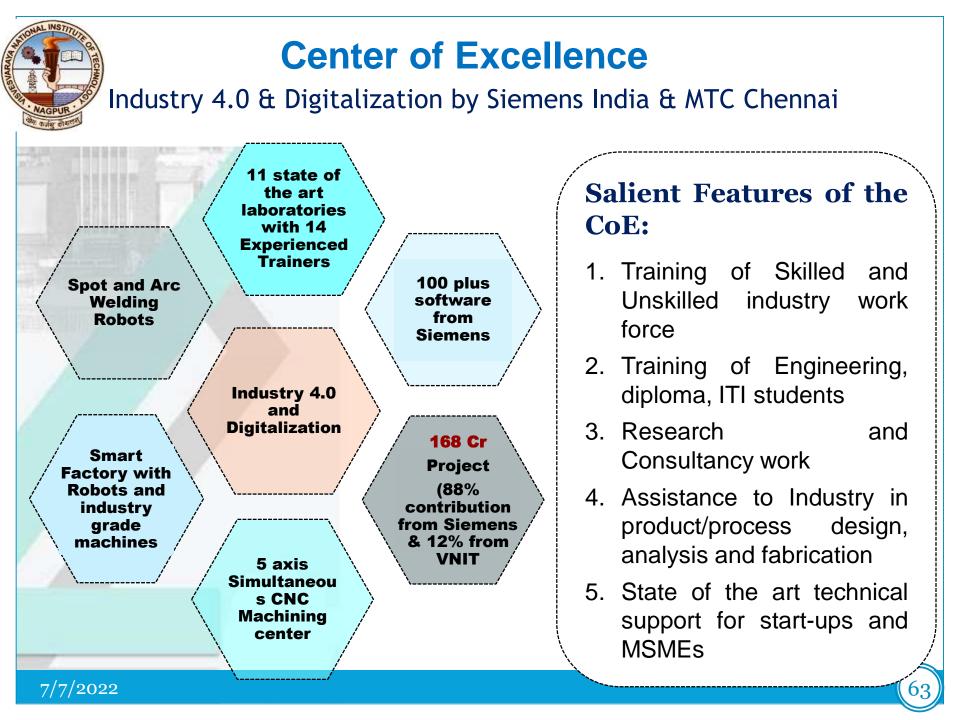


#### ISRO Team Visit VNIT



Siemens Center of Excellence in the Domain of Industry 4.0 and Digitalization.







#### **Center of Excellence**

#### Industry 4.0 & Digitalization by Siemens India & MTC Chennai





# SIEMENS MTC

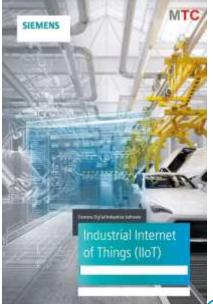
TECNOMATIX



#### Mechatronics Lab







64



# **Center of Excellence**

Industry 4.0 & Digitalization by Siemens India & MTC Chennai

Process Instrumentation Lab





Reverse Engineering Lab





# **Interaction with Outside World**



All India NIT Directors Meet has organized on 29th December 2020 on 'Role of NITs in the Development of the MSME Sector'





Guest Lecture by Shri Vikram Kirloskar, Chairman & MD of Kirloskar Systems

International conference on Advances in Mechanical Engineering-2020







# Interaction with Outside World





# Seminar organised by Khadi Village Industry Corporation (KVIC) inaugurated by Hon'ble Shri Nitin Gadkari





Indian Green Building Council (IGBC) Students' chapter installation





# **VNIT's Contribution During COVID-19**



UV Chamber for sanitization



#### **Distribution of Face Shields**



#### Sahayak Robot for hospitals







## **VNIT's Contribution During COVID-19**



#### Touch free hand sanitizer





#### Medical Equipment Distribution by VNITAA



#### Two way ventilator Splitter

69)



# **Student Activities Research Scholars' Day**

#### In associations with VIA, MIA, BMA, LUB, DICCI, KIA & CII – Vidarbha Zone

- Dr Ashok Deshpande, COEP Pune
- Dr NS Vyas, Chairman, Technology Mission for Indian Railways
- Dr Prof. Lawrence Kazmerski, University of Colorado
- Dr Anil K from IITB, Mumbai
- Sanjeev Pimpale, Ashok Leyland
- Dr Anwar Daud, ZIM Labs
- Dr Rajkumar P Singh, Sr. Director, Bharat Forge
- Dr Puneet Singh Sr. Director, QUALCOMM R&D.



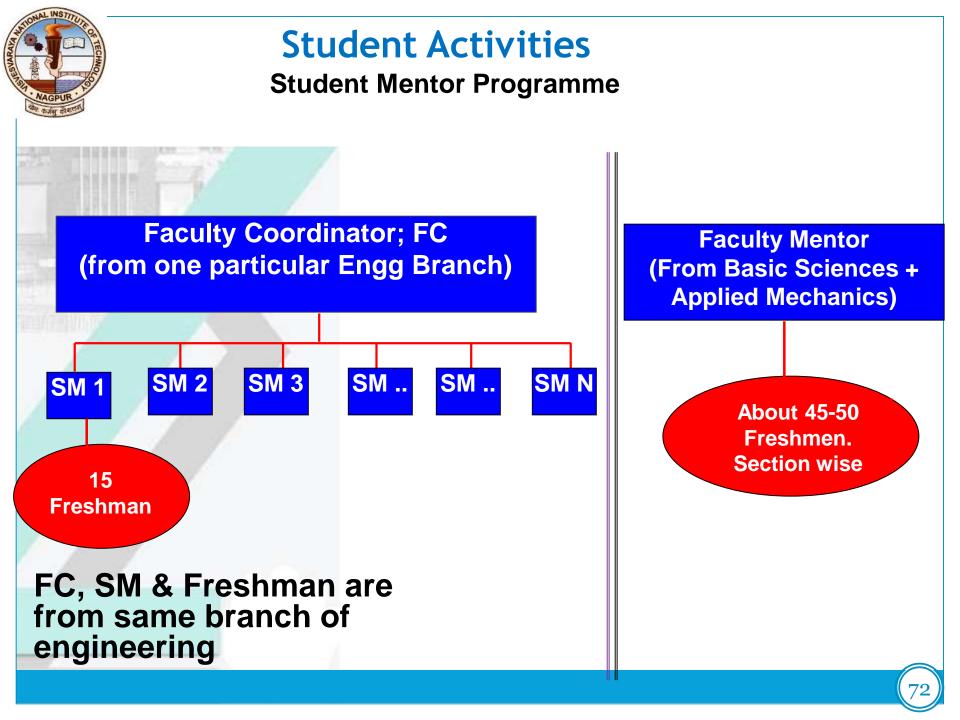


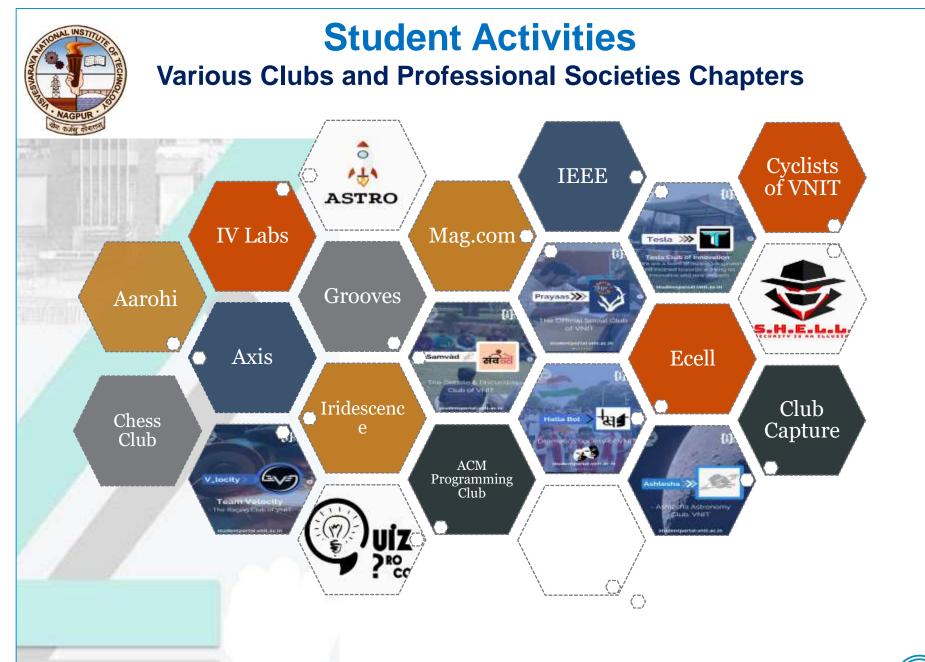


# **Student Activities** Student Mentor Programme

- Newly admitted student has many concerns
- Student Mentor Program (SMP) is designed to provide a communication channel for the student with the system
- Each 1<sup>st</sup> year student has a Student Mentor (SM)
  - SM is a 3<sup>rd</sup> year student from same branch
  - Selected using an elaborate selection/interview process
  - Each SM has 15 Mentees (Freshmen)
- Each student is also assigned a Faculty Mentor
  - A teacher who teaches you in 1<sup>st</sup> Semester









The Prime Minister's Research Fellowship (PMRF) – 4 students Khush Agrawal, 3rd year of ECE visited Russia for Youth Exchange Program under Ministry of Youth Affairs & Sports

The team "Source2Sink" from Mechanical Engineering students won forth place in Student Simulation Competition held at USA in Dec. 2020









# First Prize in Smart India Hackathon



75



First Prize Reliance Energy Power Conservation Week



# Won the SBI YONO Quiz Nagpur

regional

DST-Lockheed Martin-TATA trusts India Innovation Growth Program 7/7/2022 2.0 (IIGP) University challenge 2019 award of Rs. 10 lakhs

INDVATION GROWTH PROGRAMME [IIGP] 2.0

10.00.000/

- Disconarya Rational Institute of Jacknology

upor Too Lakh only





Students of VNIT Nagpur wins Tata crucible Campus Quiz prize Rs. 75000/-

#### City's Mohanish is a part of Indian delegation to China

UNION Ministry of Youth Affairs and Sports (International Co-operation Cell) has selected Mohanish Tikaka, meritorions final your student purnutgi BE Bectronies and Communication at Viveeraury National Institutes of Technology (VNT), here Nagpur to be part of the 200-meniber Indian Youth Delegation visiting China. The visit has denody begin and would combined on high y Group A Delefi-Beijing, Lanzhou-Dumhuang-Beijag, Delbi, Mohanish has secured 2nd position in MHCET and Not oppera in SSC examination. Its exceeded in Innernational Space Design Settlements university of visited NASA (USA) in Inner 2012, He almanna of Somahwar High Scheel, an Bearch.

an elevation of the second sec

ey will interact with academicians, business sentatives, scientists, artists, media persons experts from various fields and goin a firstknowledge about the various facets of Chinese ty and economy.

China-India Youth Development Forum, on neuro "Learning and Starting, Youth Universe AT PULOR", Held In Landwiss, Gauss Province Schence the understanding and manual musthereen the youth of China and India, and guide the youth of the two countries in exchanges and cooperations the wirness fields, in also a part of the visit. Visit to Northwest Normal University, Gauss



Mohamish Tikokor with VNIT Director Dr P M Padole.

University of Chinese Modicine, a company and some youth regarituations. North-weet Normal University, Carnon University of Chinese Modician. Lanzhon Jiaoteng University, Dunhuang Museium. Dunhuang, Optoelectronic Expo Parkiesho a part of their tuar. They are expected to watch national dancedness. AbrighterSitt Hoad? and visitto Gisar Well of Chine.

The Permod Packing Director Vincencery Plasticeal Institute of Ferniesies promoti and oblighters have congranulated Mohanida for his achievement and finnue evaluations. His is sons of Aparton Pando, Plastipal, Channavaria e Vidyananadir, Wartha, Shelapeogramme-countrator for Science/Urmpiad Foundation for Naggare District. His is genomed since his childbood by De Archana Fande and De Archald Statube Wio are Naggardpatters.



Top Three in HackHarvard Global Hackathon "Environment" Category

VNIT Student Mohanish Tikekar selected as a part of Indian Youth Delegation visited China





- Smart India Hackathon (SIH)
- Organized by AICTE and MHRD, World's biggest Open Innovation Model for innovators and entrepreneurs of tomorrow
- SIH-2020 was conducted online due to Covid situation
- 4 VNIT teams achieved first rank in their respective categories (cash prize of Rs 1 lakh per team), 3 teams in software category and 1 in hardware
- Team Bitwise "Total Paperless Office"
- Team Ivlabs "Detection, identification and monitoring of vehicles via analysis of number plates"
- Team Meraki "Attention Span Detection in Online Instructor-Led Sessions"
- Team BattlefieldEagles 'Soldier Strap' posted by DRDO under Defence Category (HW)











#### All India Inter NIT students Tournament



All India Inter NIT Faculty & Staff Cricket Tournament

4th National Solar Vehicle Challenge organized by VNIT Nagpur in association with NSVC





# **Student Activities**







# VNIT WITH ITS M&GNIFICENT ENTRY G&TE WELCOMES & SPIRING STUDENTS WITH OPEN & RMS



# THANK YOU



