

NEWS LETTER

Centre for Nano Science and Technology (A.Y 2018-19)



Centre for Nano Science and Technology **Institute of Science and Technology** **Jawaharlal Nehru Technological University Hyderabad**



Professor of NanoTechnology
Head of the Department
CNST,IST,JNTUH

As the Head of Department, I am pleased to introduce the latest edition of our department's newsletter. This edition highlights the latest achievements, events such as ICONSEA-2018, GIAN workshop, NPTEL Workshop and updates within our department. We have had a busy and productive year, with many notable accomplishments that are worth celebrating. Our faculty members have been recognized for their outstanding research contributions, and our students have excelled in their academic pursuits and extracurricular activities. In this edition, you will find articles that showcase the groundbreaking research that our department is conducting, as well as updates on the various events and activities that have taken place over the past few months. I would like to extend my gratitude to our faculty, staff, and students who have worked tirelessly to make our department a success. Their dedication and hard work are evident in the many accomplishments we have achieved this year.

About the Centre: Centre for Nano Science and Technology (CNST) was established in 2007 at Institute of Science and Technology, Jawaharlal Nehru Technology University Hyderabad with main focus on teaching and research in the field of Nano Technology under the support of DST-Nanomission. Centre has well equipped classrooms with audiovisual facilities, research and computer facilities. The Centre has modern infrastructure for carrying out research in the advanced areas of Nano science and Technology.

Vision:

- Student-centered Teaching-learning processes and a stimulating R&D environment.
- To conduct and support research, development, design and engineering in nanotechnology, and transfer the technology to industrial sector in order to increase India competitiveness, improve the quality of life the environment.
- To establish and sustain state-of-art Infrastructure for professional aspirants hailing from both rural and urban areas by creating an ambience conducive for excellence in technical education and research.

Mission:

- To become a Centre of excellence in multidisciplinary engineering.
- Educate all about presence of Nano Technology in day to day life.
- Cutting edge Research in the field of various technological/engineering aspects.
- To create System designers, Scientists, Researchers, Product designers, Nano Technologists.

Program Educational Objectives (PEO's):

- ❖ To produce masters who would have developed a strong background in Nanoscience, Nanomaterials, Thin films and ability to use these tools in their chosen fields of specialization.
- ❖ To produce masters who have the ability to serve country in the R&D domain on solving the problems in existing engineering aspects using the cutting edge technology tool called nanotechnology.
- ❖ To produce masters 'who would attain professional competence through life-long learning such as advanced degrees, professional registration, and other professional activities.
- ❖ To produce masters who function effectively in a multi-disciplinary environment and individually, within a global, societal, and environmental context.
- ❖ To produce masters who would be able to take individual responsibility and to work as a part of a team towards the fulfilment of both individual and organizational goals.

Programme Outcomes (PO's):

- An ability to independently carry out research/investigation development work to solve practical problems.
- An ability to write and present a substantial technical report/document.
- Students will demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program.
- Recognize the need for multi-disciplinary technologies, exposure to modern tools, environmental sustainability and ability to attain lifelong learning in the broader contest of Nano Technology challenges.

Strength, Weakness, Opportunity and Challenges(SWOC):

Strengths:

- Well-equipped state-of-art facilities and computer laboratories.
- Research oriented faculty with large number of publications in recognised journals.
- Beneficiary of MHRD-Global Initiative of Academic Networks (GIAN) programmes across domains
- Financial assistance for research, faculty exchange, professional development programmes.
- Guest lectures and interaction with eminent personalities
- Various projects has been given from the first year for understanding the nanoscience from hands on experience.

Weaknesses:

- Teaching faculty is working in ad-hoc capacity as the permanent position has not been filled in departments for a decade due to delay at the level of the State Government. Similar situation exists for non-teaching staff too.
- Inadequate levels of participation from foreign students for full time courses.
- Formal Networking with other institution / organisations to be enhanced.
- Difficulty to attract sizeable research funds from the Government funding agencies.

Opportunities

- Improve peer reviewed journal publication (Scopus, citation index, impact factor, h-index)
- Introduction of an organised system of summer internship and industry exposure would enhance employability of the students.
- Enrolling students to online courses at Government of India Swayam Portal would enhance their learning.
- Utilization of UGC Swayam portal for MOOC courses.
- To train students to get better placement.

Challenges

- Recruitment of permanent faculty (teaching as well as non-teaching).
- Attracting core engineering company placements
- Keeping pace with global development in pedagogy and research.

Syllabus Revised: Revised in 2017

Number of Programmes offered: 02

S. No.	Program Name	PG	Sanctioned intake	Year of starting	Regular/Self finance
1	M.Tech(Nano Technology)	PG	25 (18+7)	2007	Regular
2	Ph.D(Nano science and Technology)	Ph.D	-	2010	Regular & Part-Time

Academic Year	Program Name	Program Code	Number of seats sanctioned	Number of students admitted
2018-19	M.Tech (Na notechnology)	D66	25	14

NBA Accreditation	Granted provisional accreditation for three years for the period File No. 11-68/2010/NBA (Accredited 2016- 2018) One Year Extended 30 -06-2018 to 30-06-2019 (2018-19)
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NATIONAL BOARD OF ACCREDITATION

NBCC Place, East Tower, 4th Floor, Bhasham Pitamah Marg,
Pragati Vihar, New Delhi-110 003
Tel: +91 11 2436 0620-22, 2436 0654 Telefax: +91 11 2436 0682
Website: www.nbaind.org



File No. 11-68-2010-NBA

Date: 27-12-2016

To

The Principal
JNTUH Institute of Sci. & Tech. (IST),
Kukatpally, Hyderabad, 500085, Telangana

Subject: Accreditation status of programmes applied by JNTUH Institute of Sci. & Tech. (IST),
Kukatpally, Hyderabad, 500085, Telangana.

Sir,

This has reference to your application ID No. 1277 dated 14-03-2015 in Tier-I format seeking accreditation by National Board of Accreditation to PG Engineering programmes offered by JNTUH Institute of Sci. & Tech. (IST), Kukatpally, Hyderabad, 500085, Telangana.

2. An Expert Team conducted on-site evaluation of the programmes during 21st to 23rd October, 2016. The report submitted by the Expert Team was considered by the concerned Committees constituted for the purpose in NBA. The Competent Authority in NBA has approved the following accreditation status to the programmes as given in the table below:

S.No	Name of the Programmes (PG)	Basis of Evaluation	Accreditation Status	Period of validity	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
1.	Chemical Technology	Tier-I Document	Provisionally Accredited	Academic Years 2016-2017 and 2017-2018 i.e., upto 30-06-2018.	Accreditation status granted is valid for the period indicated in col.5 or till the program has the approval of the competent authority, whichever is earlier
2.	Nano Technology		Provisionally Accredited		

3. It may be noted that only students who graduate during the validity period of accreditation, will be deemed to have graduated with an NBA accredited degree.

4. The Programmes have been granted Provisional Accreditation. JNTUH Institute of Sci. & Tech. (IST), Kukatpally, Hyderabad, 500085, Telangana should submit the Compliance report at least 6 months before the expiry of validity of accreditation mentioned above.

Contd./-

(Signature)

-2-

5. The accreditation status awarded to the programmes as indicated in the above table does not imply that the accreditation has been granted to JNTUH Institute of Sci. & Tech. (IST), Kukatpally, Hyderabad, 500085, Telangana as a whole. As such the Institution should nowhere along with its name including on its letter head etc. write that it is accredited by NBA because it is programme accreditation and not institution accreditation. If such an instance comes to NBA's notice, this will be viewed seriously. Complete name of the programme(s) accredited level of programmes and the period of validity of accreditation, as well as the date from which the accreditation is effective should be mentioned unambiguously whenever and wherever it is required to indicate the status of accreditation by NBA.

6. The accreditation status of the above programmes is subject to change on periodic review, if needed by the NBA. It is desired that the relevant information in respect of accredited programmes as indicated in the table in paragraph 2, appears on the website and information bulletin of the Institute.

7. The accreditation status awarded to the programmes as indicated in table in paragraph 2 above is subject to maintenance of the current standards during the period of accreditation. If there are any changes in the status (major changes of faculty strength, organizational structure etc.), the same are required to be communicated to the NBA, with an appropriate explanatory note.

8. Copies of the Report of Chairman of the Visiting Team and Evaluators' reports in respect of the above programmes are enclosed.

9. If the Institute is not satisfied with the decision of NBA, it may appeal within thirty days of receipt of this communication giving reasons for the same and by paying the requisite fee.

Yours faithfully,

(Signature)
(Dr. Anil Kumar Nassa)
Member Secretary

Encls: 1. Copy of Report of Chairman of the Visiting Team.
2. Copies of Expert Reports of the Visiting Team.

Copy to:

- The Principal Secretary (Higher Education),
Government of Telangana,
D Block, Secretariat Building,
Hyderabad- 500022 Telangana
- The Director of Technical Education,
State Board of Technical Education and Training
Govt. of Telangana,
7th Floor, B.R.K.R. Bhavan
Tankbund Road, Saifabad
Hyderabad- 500 063, Telangana
- Accreditation File
- Master Accreditation file of the State.

NATIONAL BOARD OF ACCREDITATION

NBCC Place, East Tower, 4th Floor, Bhasham Pitamah Marg,
Pragati Vihar, New Delhi-110 003
Tel: +91 11 2436 0620-22, 2436 0654 ; Telefax: +91 11 2436 0682
Website: www.nbaind.org



File No: 11-68-2010-NBA

Date 27-08-2018

To

The Principal
JNTUH Institute of Science & Technology (IST),
Kukatpally, Hyderabad- 500085, Telangana

Subject: Extension of the Period of Accreditation Status granted to PG Engineering Programs offered by JNTUH Institute of Science & Technology (IST), Kukatpally, Hyderabad- 500085, Telangana.

Sir,

This has reference to NBA's letter of even number dated 27-12-2016 under which PG- Chemical Technology and PG- Nano Technology programs offered by your institution were granted provisional accreditation for 2 years in Tier-I by National Board of Accreditation.

2. National Board of Accreditation (NBA) has decided that in all cases where PG Engineering program(s) of an institution were granted provisional accreditation for a period of 2 years the period of provisional accreditation of these program(s) shall be extended from 2 to 3 years subject to the condition that they meet the essential Pre-visit qualifiers submitted by JNTUH Institute of Science & Technology (IST), Kukatpally, Hyderabad- 500085, Telangana. The following PG Engineering programs meet the essential parameters of pre-qualifiers. Accordingly, the competent authority in NBA has approved the following accreditation status to the programs as given in the Table below:

Sl. No.	Name of the Program(s) (PG)	Basis of Evaluation	Accreditation Status	Period of validity	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
1.	Chemical Technology	Tier-I Document	Accredited	Academic Years 2018-2019 i.e., up to 30-06-2019	Accreditation status granted is valid for the period indicated in Col.5 or till the program has the approval of the competent authority, whichever is earlier
2.	Nano Technology		Accredited		

3. It may be noted that only students who graduate during the validity period of accreditation, will be deemed to have graduated with an NBA accredited degree.

4. The programs have been granted accreditation for one year. JNTUH Institute of Science & Technology (IST), Kukatpally, Hyderabad- 500085, Telangana should submit the Compliance Report at least six months before the expiry of validity of accreditation mentioned above to be eligible to be considered by the concerned Committee in NBA for further processing of the accreditation status. This could entail further extension of accreditation or a revisit, as deemed appropriate by NBA Committees.

5. The accreditation status awarded to the programs as indicated in the above table does not imply that the accreditation has been granted to JNTUH Institute of Science & Technology (IST), Kukatpally, Hyderabad- 500085, Telangana as a whole. As such the Institution should nowhere along with its name including on its letter head etc. write that it is accredited by NBA because it is program accreditation and not institution accreditation. If such an instance comes to NBA's notice, this will be viewed seriously. Complete name of the program(s) accredited, level of program(s) and the period of validity of accreditation, should be mentioned unambiguously whenever and wherever it is required to indicate the status of accreditation by NBA.

Contd/-

(Signature)

-2-

6. The accreditation status of the above programs is subject to change on periodic review, if needed by the NBA. It is desired that the relevant information in respect of accredited programs as indicated in the table in paragraph 2, appears on the website and information bulletin of the Institute.

7. The accreditation status awarded to the programs as indicated in table in paragraph 2 above is subject to maintenance of the current standards during the period of accreditation. If there are any changes in the status (major changes of faculty strength, organizational structure etc.), the same are required to be communicated to the NBA, with an appropriate explanatory note.

Yours faithfully,

(Signature)
(Dr. Anil Kumar Nassa)
Member Secretary

Copy to:

- The Director Technical Education
State Board of Technical Education and Training
Govt. of Telangana, 7th Floor, B.R.K.R. Bhavan
Tankbund Road, Saifabad, Hyderabad- 500063
Telangana
- Accreditation File
- Master Accreditation file of the State.

Value Added Courses offered:

1. Selection of nanomaterials for energy systems (VAC 07)
2. Carbon nanostructures preparation and its applications (VAC 08)
3. 3D printer technology and its fabrication (VAC 09)

Mentor-Mentee Details:

S.No	Mentor name	No. of mentee
1	Dr.CH Shilpa Chakra	7
2	Dr. K.Venkateswara Rao	5

Faculty Details :

Name of the Faculty	Designation	Qualification	Experience (Years)
Dr.K.Venkateswara Rao	Professor of Nanotechnology & Head of the Department	M.Sc.,M.Tech.,Ph.D.,PDF Raman Postdoctoral fellow (2016-17),Johns Hopkins Medicine, USA	21
Dr.CH Shilpa Chakra	Assistant Professor of Nanotechnology & BoS Chairperson i/c for Nanotechnology	B.Tech.,M.Tech., Ph.D	8
Mr.D.Rakesh	Assistant Professor (Contract)	B.Tech.,M.Tech	8

Student Pass Percentage : 44%

R&D Projects: 2 (TEQIP-III)

Full time Research Scholars:

S.N	Name of the Full-Time Research scholar	Type of Fellowship	Name of the supervisor	Research area
1	Dayakar T	UGC-RGNF	Dr.K.Venkateswara Rao	Bio Sensors
2	Solleti Goutham	DST JRF/SRF	Dr.K.Venkateswara Rao	Gas sensors
3	B.Geeta Rani	Research Assistantship (RA)	Dr.K.Venkateswara Rao	Gas sensors
4	S. Madhuri	Research Assistantship (RA)	Dr. CH. Shilpa Chakra	Energy Storage
5	V. Sai Kumar	Research Assistantship (RA)	Dr.K.Venkateswara Rao	Electrochemical sensors

Part-time scholars :

S.No	Name of the Research scholar	Name of the supervisor	Research area
1	V.Sesha Sai Kumar	Dr. K Venkateswara Rao	Nanofluids
2	Ramasubba Reddy P	Dr. K Venkateswara Rao	Ballistic Behaviour of Polymer Composites
3	S. Sasirekha	Dr. K Venkateswara Rao	Nano Lithium batteries
4	A.Saineeta	Dr. K Venkateswara Rao	Gas sensors
5	Neetu Rani.P	Dr. K Venkateswara Rao	Gas sensors

Teacher Awards/Recognitions:

Dr. K Venkateswara Rao:

1. Awarded as NPTEL Certificate of appreciation Instrumental role as SPOC for swayam NPTEL

Dr. CH. Shilpa Chakra:

1. Associate Fellow award from A.P. Akademi of Sciences
2. Associate Fellow Award from Telangana Academy of Sciences



No of Paper publications: 19

No of Workshop/Conferences/seminars Organised : 06

No of Workshop/Conferences/seminars Attended: 26

No of Books Published: 02

Research Collaborations:

Dr. Ch. Shilpa Chakra :

1. Department of Material Science and Nano technology, Yogi Vemana University

Membership in National/International bodies:

- Life Member of Indian Science Congress
- Life Member of Electron Microscope Society of India
- Life Member of Nano and Molecular Society

- Life Member of Indian Crystallographic Association
- Life Member of Nano Science and Technology Consortium
- Life Member of Powder Metallurgy Association of India
- Life Member of Society for Materials Chemistry

No of students placed: 02

No of Student progression to higher education: 01

Infrastructure-Learning Resources:

No of Class rooms: 01

List of ICT enabled tools: LCD Projector, LED TV, Desktop Computers with LAN facility

Total No of computers in simulation Lab: 13

Laboratories:

Nano Electronics Lab

S. No.	Name of the Major Equipment	Purpose/Usage
1	Controlled Humidity chamber (sensor)	Academics & Research
2	Cyclic Voltammetry	Academics & Research
3	Solar simulator	Academics & Research
4	LCR Meter	Research
5	Four point probe	Research
6	Humidity sensing chamber	Academics & Research
7	Gas sensor set up	Academics & Research
8	Nano fluid Ultrasonic Interferometer	Academics & Research
9	Dip coating	Academics & Research



ICONSEA 2018 PHOTOS:





GIAN 2018:



Industrial Visits:

S.NO	BATCH	No. Students	Industry	Date of visit
1	2018-19	12	ARCI	25-01-2018



Research Outcomes:

1. Developed new nanomaterials with unique properties for various applications.
2. Investigated behavior of nanomaterials in different environments.
3. Designed and fabricated nanoscale devices, such as sensors or transistors.
4. Developed nanotechnology-based drug delivery systems for targeted therapy.
5. Studied potential toxicity of nanomaterials and their impact on the environment.
6. Explored nanotechnology applications in renewable energy, such as solar cells or energy storage devices.

Best Practices:

1. Hands-on laboratory experience: Nanotechnology research involves experimental work in the laboratory. M.Tech students gained hands-on experience in nanofabrication, materials synthesis, and characterization techniques. They learned how to use advanced tools such as scanning electron microscopy, atomic force microscopy, and X-ray diffraction to analyze the properties of their nanomaterials.
2. Keeping up-to-date with literature: The field of nanotechnology is rapidly evolving with new discoveries and innovations being made every day. M.Tech students have kept up-to-date with the latest research by reading scientific journals and attending conferences and seminars.