



VALLURUPALLI NAGESWARA RAO VIGNANA JYOTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY

An Autonomous Institute, NAAC Accredited with 'A' Grade, NBA Accredited for CE, EEE, ME, ECE, CSE, EIE, IT B.Tech. Courses Approved by AICTE, New Delhi, Affiliated to JNTUH, Recognized as "College with Potential for Excellence" by UGC, Vignana Jyothi Nagar, Pragathi Nagar, Nizampet (S.O), Hyderabad – 500 090, TS, India.

CENTRE FOR EDUCATION TECHNOLOGY



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“What is the purpose of life?

If one were to express this in just a word, it would have to be ‘happiness’. The purpose of education must therefore accord with the purpose of life.

The essence of education is not to transfer knowledge; it is to guide the learning process, to put responsibility for study in the student’s own hands... [and] place people on their own path of discovery and invention.”

**-Tsunesaburo Makiguchi
Educator**

**Technology can become
the “wings” that will allow
the educational world to
fly farther and faster than
ever before—if we will
allow it.**

-Jenny Arledge

**Education is not the learning of facts. It’s rather
the training of the mind to think.**

- Albert Einstein



CONTENTS

Sl. No.	Topic	Pages
1.	Background for the Establishment	4
2.	About the Centre for Education Technology	5
3.	Vision	10
4.	Mission	10
5.	Objectives	10
6.	Coordinators & Members	11
7.	Activities	12
8.	MOUs	13
9.	Achievements	14
10.	Photos	15





1. Background for the Establishment

Need of human resource development in the field of Education:

According to UNICEF and UNESCO, (Education for Sustainable Development Goals, (UNESCO 2017)), “Education systems must respond to the pressing need of transforming the way we think and act- new skills, values, and attitudes that lead to more sustainable societies by defining relevant learning objectives and learning contents, introducing pedagogies that empower learners, and urging their institutions to include sustainability principles in their management structures.” Education is the key to the sustainable development of any Nation. But in fast-developing countries like India, the pace of development is hampered due to inadequately skilled human resources. To narrow this gap, conscientious efforts for human resource development need to be converged in the field of education.

Integration of Technology in Education:

Globalization, rapid advances in technology, and the advent of Information and Communication Technologies (ICT) demand new skills such as Communication, Cognitive, and Interpersonal skills, Collaboration, Abstract-reasoning skills, Initiative, Creativity, Ability to understand and analyze data, Negotiation, and Conflict Resolution, Critical thinking, Problem-solving, Innovation, and Adaptability. This demand for new skills has brought urgency for the integration of new technologies into education not only for providing transformative teaching/learning experiences but also for research, innovation, and entrepreneurship to achieve the expected goals.

Today, technology-enabled pedagogical approaches have replaced chalkboards with interactive digital whiteboards, and use of smartphones and tablets for inverted classrooms/ flipped learning to attain maximum class time for interaction, discussions, and debates on problems that require collective reasoning and interaction of ideas thus making ICT integral to teaching-learning practices.



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Establishment of the Centre for Education Technology (CET) for realizing the vision and mission of VNR VJIET:

Integration of new technologies requires a paradigm shift in the teaching/learning processes for which appropriate training in modern pedagogical processes needs to be imparted to the faculty from time to time. This goal can be accomplished through the establishment of the Centre for Education Technology which will extend its reach to a larger community of teachers and thereby support the students, realizing the goal of inclusive education.

This centre proposes to provide training in Technology, Pedagogy, and Content Knowledge (**TPACK**) to faculty of the institute initially and extend it to faculty of other educational institutes in the State of Telangana.

The Vision of VNR VJIET is *“to become a World Class University providing value-based education, conducting interdisciplinary research in cutting-edge technologies leading to the sustainable socio-economic development of the nation”*. The mission of VNRVJIET is *“to produce technically competent and socially responsible engineers, managers, and entrepreneurs through the use of modern pedagogy for improving the teaching-learning processes”*. The institute desires to involve students and faculty in innovative research projects linked with industry, and research in institutions in India and abroad.

With this Vision and Mission, the institute has strategically planned for the establishment of the Centre for Education Technology, towards providing transformative education and hence its efforts towards Quality Improvement in various aspects and thereby value-based education.

The focus of the institute has been Curriculum Design, Teaching/Learning & Evaluation, and won accolades from the NAAC committee during the second cycle of accreditation in 2018. Further, it has made significant improvements in Student Support and



CENTRE FOR EDUCATION TECHNOLOGY



Progression and has been forging ahead in research. The Institute, at this juncture, felt that it was time to contemplate the challenges faced by Higher Education in contemporary times and seek solutions through innovative teaching methodologies and technology integration into pedagogy.

With this mission, VNR VJIET set out to accomplish its goals through myriad quality improvement programmes. These Programmes began in 2012 when the Institute sponsored two faculty members for a **POGIL** Facilitator Training at Myrtle Beach, US for implementing innovative teaching methodologies in STEM. POGIL is an acronym for ***Process Oriented Guided Inquiry Learning***. It is a student-centered, group-learning instructional strategy and philosophy developed through research on how students learn best. POGIL is an internationally acclaimed teaching Pedagogy that makes students feel engaged, accomplished, and empowered. The Workshop trained this faculty in facilitating POGIL in large, heterogeneous classrooms.

In continuation with this, a series of workshops, namely, Art of Teaching, POGIL, and Instructional Design were organized by the Department of Humanities & Sciences, VNR VJIET in collaboration with Enhance-Edu, IIIT-Hyderabad. Through these workshops, the faculty of VNR VJIET were trained in creating **Wikis** (an online forum for posting, editing, and adding information). This dynamic tool is used in a classroom setting for Lesson Planning. Applying Bloom's Taxonomy to teaching/learning and assessment was another important aspect covered during these training sessions.

The Institute's Best Practices, which can be called the "**Vignana Jyothi Differentiators**", are centered on teaching, and learning processes and methodologies. Among these, WIT & WIL™ (*Why am I Teaching What I am Teaching/What am I Learning What I am Learning*), Career Vision Approach™, VNR Lab Protocol™, and VJ Spectral Pyramid™ are trademarked, unique practices of the Institute.

VNR VJIET also initiated the practice of conducting Induction Programs for new faculty in 2013 to acclimatize them to the teaching environment at VNR VJIET as well as train them in pedagogical practices.



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In the academic Year 2013-14, a 3-Day International Workshop on “Reviving Education by Implementing Active and Guided Inquiry Experiences in STEM” - “REIMAGINE STEM” was conducted. The Facilitators were Dr. Kelly Butler, Dr. Daniel Libby, and Dr. Clifton Kussmaul, from the USA, representing the National POGIL Project of the U.S.A. They trained the teachers of VNR VJIET in designing POGIL activities in the respective domains and thus helped them make their classrooms and laboratories more student-centered.

A Two-Day Workshop on outcome-based education, a one-day workshop on WIT & WIL, and Micro Teaching Sessions were conducted in the academic Year 2014-15. In addition to these, the faculty of English worked on the “Development of Learning Analytics Tool” for English Composition. Dr. Vivek Kumar, Prof. Kinshuk, Ms. Isabelle and Mr. Jeremy of Athabasca University, Canada were leading this project.

As part of the Quality Improvement initiative in Teaching/ Learning, VNR VJIET accepted Dr. Kelly Butler, Prof. of Chemistry, Chestnut Hill College (CHC), Philadelphia, Pennsylvania for affiliation of Fulbright-Nehru Academic Excellence (Teaching) Post-Doctoral Fellowship offered by USIEF in 2015-16 for 9 months from July 2015 to April 2016 thus facilitating faculty exchange. During these 9 months, Dr. Kelly not only implemented the new pedagogy of POGIL in teaching Engineering Chemistry but also conducted workshops on POGIL for VNR VJIET faculty.

VNRVJIET was recognized as a remote centre in 2015 -16 by IIT Bombay under the National Mission in Education through ICT (NME-ICT) scheme for conducting training sessions on Teaching/Learning using ICT methods. As part of the National Mission on Education through ICT (MHRD, Govt. of India), a workshop was conducted in the distance mode, using A-VIEW software and the Internet, titled, ‘Technical Communication for Scientists & Engineers’, in the academic Year 2015-16 using MOODLE for the faculty.

Online educational methodology, which includes Blended Learning and flipped classrooms with associated pedagogy of active learning, has emerged as the mainstay of effective education in the 21st century. The challenges of teaching, especially in higher education, now



CENTRE FOR EDUCATION TECHNOLOGY



lie in making this integration seamless and effective. Most of our teachers need training to gain the skills and competencies for effective use of ICT in education. It is thus an urgent national requirement that all our teachers, at least those teaching in our professional colleges, are empowered to use technology effectively, to enhance the quality of education. Thus began a quest for equipping ourselves with these technologies.

The Head and the core members of the Department of H&S attended a Four Week AICTE approved FDP by IIT Bombay on – “Use of ICT in Education for Online and Blended Learning”. This MOOC-based Faculty Development Program (FDP) was conducted in a blended mode from May 2nd, 2016 to July 10th, 2016 and these faculty were recognized as top performers for which they won an “**Award of Excellence**” sponsored by SAP India Pvt. Ltd. and a cash prize of Rs. 5000/-. This training empowered them to use technology effectively in the classroom.

As top performers in the earlier FDP of IIT Bombay, our team from the Centre for Education Technology got an opportunity to mentor FDP 201x participants in creating Open Educational Resources (OER) after undergoing an additional course, “Mentoring Educators in Educational Technology” (FDP301x) offered in blended format connecting technology, pedagogy, and content, thereby contributing to the nation building exercise of training teachers in these modern pedagogies.

In the process of conducting a series of workshops on integrating technology into teaching/learning, the faculty was equipped with modern pedagogy along the lines of TPACK, for better delivery of the subject.

Later, in alignment with Vision 2020 of the Institute to provide value-based education using modern pedagogy, the Department of H&S came up with a proposal to establish a **Centre for Education Technology (CET)** in the year 2016. This was the beginning of formal teacher training in technology-integrated pedagogy at the Institute.



CENTRE FOR EDUCATION TECHNOLOGY



About Centre for Education Technology

The Centre for Education Technology started in the year 2016 to conceptualize the execution and evaluation of the education process, i.e. learning and teaching with application of modern educational teaching techniques. The application of educational technology requires knowledge from several areas: pedagogy, psychology, didactics, computer sciences, informatics, etc. So, the Centre provides a roadmap to reach the required areas by using different modern teaching pedagogies than the traditional ones. ***The centre aims to:***

- Create and support effective digital-age learning environments to maximize the learning of all students.
- Assist teachers in using technology effectively for assessing student learning, differentiating instruction, and providing rigorous, relevant, and engaging learning experiences for all students.
- Demonstrate adult learning and leadership and continuously deepen their knowledge and expertise through reflective evaluation.
- Participate in the development and implementation of a shared vision for the comprehensive integration of technology to promote excellence.
- Make lessons more engaging, interactive, collaborative, and designed for multiple intelligences.



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VISION:

1. To be a centre for excellence in integrating technology with teaching teaching-learning process for providing a transformational learning experience empowering student competencies and reaching leadership among the faculty.
2. To be a Technology Enhanced Education Ecosystem for catering to the diversified knowledge needs of the Nation.

MISSION:

1. To enhance teachers' aptitude towards technology-enabled education to synergize between education, development, and technology.
2. To nurture faculty and students for research and innovation in the field of education technology.
3. To establish a proactive community network for promoting ubiquitous education technologies.

OBJECTIVES:

- Empower educational systems by sharing our knowledge and expertise to create the learning environments of the future.
- Harmonize pedagogical needs with the evolution of new technology.
- Use OERs for enhancement of regular course content.
- Support for learner-centered, self-directed, peer-to-peer, and social/informal learning approaches.
- Use MOODLE -Modular Object-Oriented Dynamic Learning Environment - open-source platform to develop and manage courses online.
- Focus attention and engage students in comprehending the material.
 - Combine face-to-face instruction with computer-mediated instruction, blended-learning, and increase the options for better quality and quantity of human interaction in a learning environment.
- Provide 'real-life' learning experiences through OER that link to employer or professional sector activities.
- Guide teachers to develop higher levels of thinking process for critical thinking or creative thinking.



CENTRE FOR EDUCATION TECHNOLOGY



- Focus attention and engage students in comprehending the material.

CET Coordinators & Members

Sl. No	Name	Designation	Department
1.	Dr. T. Jayashree Head & Professor	Head	H&S
2.	Dr. S. Kanchana Associate Professor	Coordinator	H&S
3.	Dr. Pratiba Rani Saha Asst. Professor	Coordinator	H&S
4.	Mrs. A Jyothirmai Asst. Professor	Member	CE
5.	Dr. Rashmi Kapoor Associate Professor	Member	EEE
6.	Mr. L. Sandeep Raj Asst. Professor	Member	ME
7.	Ms. L. Dharmateja Assistant Professor	Member	ECE
8.	Ms. Tejaswi Assistant Professor	Member	CSE
9.	Ms. D. Kalyani Assistant Professor	Member	IT
10.	Mr. Nagarjunachary Assistant Professor	Member	EIE
11.	Dr. B. Harish Assistant Professor	Member	AE
12.	Ms. G. Mounika Assistant Professor	Member	CSE - CYS
13.	Dr. A.Kousar Nikhath Associate Professor	Member	CSE - AIML
14.	Mr. B.Sangameshwar Asst. Professor	Member	CSE - DS



Activities

Regular workshops on POGIL activities, Outcome Based Education, Using MOODLE and MOOCs, Learning by Doing, New and Emerging Pedagogies, Innovative Practices, Blended Learning, Flipped Classroom, Bloom's Taxonomy, Plickers, Open Education Resources (OER), Instructional Design & Delivery Systems, Latex, etc. were conducted through this Centre.

The CET is currently contributing to the e-learning domain and developing comprehensive training and consultancy packages to enable the faculty to develop high-quality instructional design. Over nine years, i.e. from 2012 to 2021, these workshops reached out to a substantial number of engineering faculty at VNRVJIET (The list of workshops is given in Annexure). Supporting these activities, the Institute has a dynamic resource centre (Library) with an excellent collection of e-resources and books.

Understanding the need for training teachers in using ICT methods and with the expertise available in the Institute, VNRVJIET is poised to undertake the activities through Centre for Education Technology effectively.



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Memorandum of Understanding

VNR Vignana Jyothi Institute of Engineering and Technology has collaborated with IIT Bombay Spoken Tutorial Program. The IIT Spoken Tutorial Program has recognized VNRVJIEET as ***SPOKEN TUTORIAL IIT Bombay's Nodal Resource Centre NRC) for the Telangana Region.***

Spoken Tutorial is a video session explaining the subject with a screencast and narration. It can be used for various topics and domains ranging from purely technical to mundane but common issues. For instance, one can explain how to register an account for online train ticket booking.

Spoken Tutorial has the potential to make India, an IT literate nation. "Spoken Tutorial is beneficial for learners as it is Free and Open Source Software (FOSS). The tutorials are dubbed into various Indian languages.

Spoken Tutorial is part of the Talk to a Teacher project of the National Mission on Education through ICT under MHRD.

Key benefits:

- Excellent self-learning methodology.
- Scale-up of workshops is possible.
- Can learn in a language of one's choice.
- Can learn at a convenient pace.
- Can learn at a convenient time.





CENTRE FOR EDUCATION TECHNOLOGY



Achievements

- The centre is recognized as the '**Nodal Resource Centre for Spoken Tutorials**'.
- Around 48 faculty members attended the workshop on "Use of ICT in Education for Online and Blended Learning" conducted by IIT Bombay out of which 14 faculty members were awarded top performers & 12 faculty members were Conferred with "**Award of Excellence**" sponsored by SAP India Pvt. Ltd. and a cash prize of Rs. 5000/-.
- These faculty worked as **Associate faculty** for the AICTE-sponsored FDP program on ICT Methods being conducted by IITB, as part of the NMEICT Initiative for faculty across the Nation.
- The faculty members are now serving as mentors for FDP301x Mentoring Educators in Educational Technology.
- The Centre conducted various Workshops, Guest Lectures & FDPS on different topics related to ICT and other teaching learning methods.

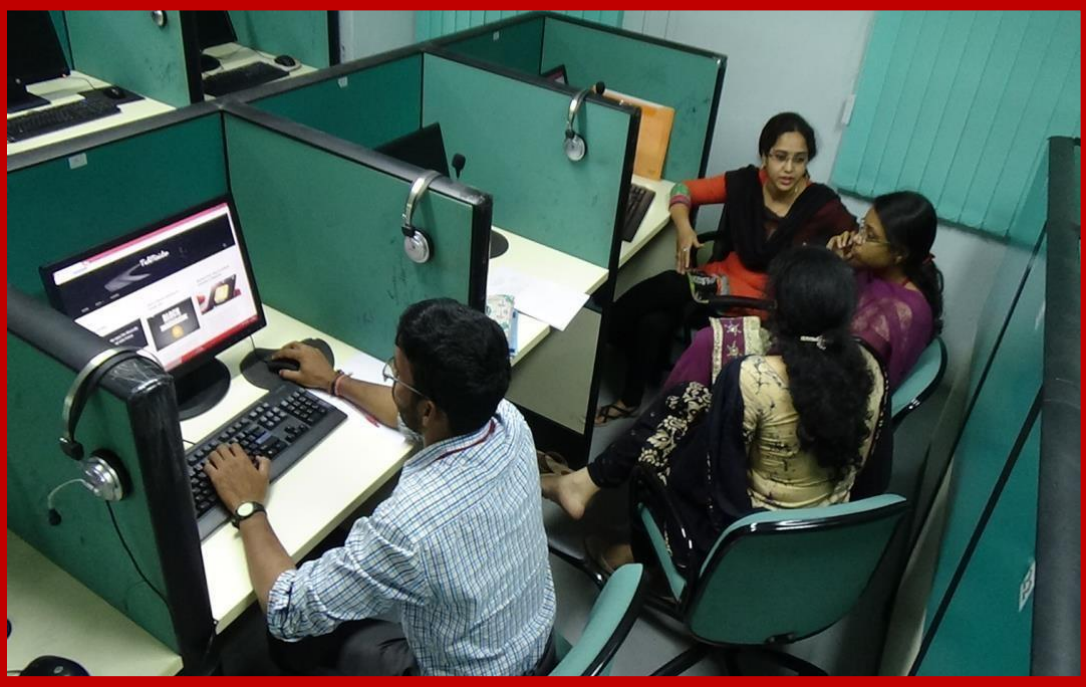




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PHOTOS





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