

### Preparedness and Status of Implementation of NEP 2020 (As on 2022 – 2023)

In the recent third anniversary of the celebration of National Education Policy 2020 held at New Delhi during July 26 – 30, 2023, NSRIT bagged one among the top 25 institutions in the country in the implementation of NEP 2020.



## Nadimpalli Satyanarayana Raju Institute of Technology (Autonomous), Visakhapatnam, Andhra Pradesh

Affiliated to JNTU-GV | Accredited by NAAC with 'A' grade | Accredited by NBA (CSE, ECE & Mechanical Engg.)



### Initiatives towards the implementation of NEP 2020

Trans-disciplinary curriculum – Minor Degree in Liberal Arts, Statistics, General Management and Personal Management | Streaming out single phased education | Academic Bank of Credits | Blended Learning – Implementation of LMS | Experiential Learning thro' internship & OJT | Multi-disciplinary curriculum | Minors Degree in AIML | Academic digitization | International Collaboration

**NSRIT**

[www.nsr.it.edu.in](http://www.nsr.it.edu.in)



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## 1. Multidisciplinary / interdisciplinary:

### a) **Delineate the vision/plan of institution to transform itself into a holistic multidisciplinary institution.**

The institution is actively advancing towards offering a multi-disciplinary education approach to a tune of 32 credits. This progress involves the inclusion of compulsory open elective courses and the introduction of a trans-disciplinary curriculum streaming out single phased education. This means that students, regardless of their chosen program of study, now have the opportunity to select from a range of courses such as Machine Learning, Data Science, EV Technology, IoT, Competitive Programming and other specialized fields.

### b) **Delineate the Institutional approach towards the integration of humanities and science with STEM and provide the detail of programs with combinations.**

The institution is taking a forward-looking approach by gradually phasing out traditional single-stream education and moving towards a trans-disciplinary curriculum that encompasses not only engineering but also elements from the fields of Science and Humanities. In this vein, the institution has already initiated several B. Tech. (Minor) courses in areas such as Liberal Arts (including Psychology, Journalism, and English for Media), General Management, Personal Management, and Universal Human Values. Several experts from India are also invited to deliver expert talks in these field and also scheduled to invite few professors from abroad universities, British Broadcasting Corporation (BBC) and so on.

Furthermore, the institution is in the process of implementing an Open Book Examination System that includes a 3-Dimensional Mapping approach to assess knowledge, cognitive abilities, and STEM education. To support this transition, an intensive 45-day training program is being provided to a select group of faculty members from various study programs, in collaboration with the National Technical Teachers Training Research (NITTTR) Institute in Chennai.



- c) **Does the institution offer flexible and innovative curricula that includes credit-based courses and projects in the areas of community engagement and service, environmental education, and value-based towards the attainment of a holistic and multidisciplinary education. Explain**

Yes, the institution boasts a highly adaptable curriculum, which serves as a distinguishing feature within its autonomous educational framework. This innovative curriculum includes elements like industry-integrated one-credit courses, emphasizing a multi-disciplinary approach to education. Additionally, the institution has introduced a credited course on Community Service Projects (CSP) for all students, alongside their internships. Beyond the curriculum, the institution also places significant emphasis on community engagement through clubs and societies like the National Service Scheme (NSS) and YRC. These groups educate the local community on topics of national importance, such as Digital Literacy, Environmental Awareness, Climate Change, and Sustainability, health and hygiene, contribution to the community in terms of service and knowledge extension particularly during special commemorative events.

Every Saturday, the institution reserves this day for a unique initiative, sending students to various industries, fostering a multi-disciplinary approach that enhances problem-solving skills and critical thinking. In terms of specific credit-based courses, the institution has already established ones related to Environmental Education, Climate Change, and Sustainability, which are available to all students. Furthermore, community engagement and service are carried out through the National Social Service in various socially relevant activities. There are plans to introduce a credit-based course in Universal Human Values in the near future, as an additional offering.

- d) **What is the institutional plan for offering a multidisciplinary flexible curriculum that enables multiple entry and exits at the end of 1st, 2nd and 3rd years of undergraduate education while maintaining the rigor of learning? Explain with examples.**

Yes. The institution is officially registered with the Academic Bank of Credits (ABC) and has effectively incorporated the Multiple Entry and Multiple Exit (ME-ME) provision. Students are registered on the ABC portal, and their grade memos are uploaded there. Additionally, their ABC ID is made accessible through their hall tickets. Furthermore the institutional logo is also reflected in the ABC portal under registered category.

As per this framework, students who choose to exit after the first year receive an Undergraduate Certificate in Engineering, while those who complete the second year are awarded a Diploma or Advanced Diploma. Example: Upon successful completion of the third year, students are granted a B.Sc. in Engineering, and those who continue through the fourth year attain a B. Tech degree. Importantly, these pathways maintain the required number of credits in alignment with the National Credit Framework (NCF) and the National Education Policy (NEP) of 2020. The above changes were made in the Academic Rules and Regulations 2020 (Revision 1) and forthcoming

- e) **What are the institutional plans to engage in more multidisciplinary research endeavors to find solutions to society's most pressing issues and challenges?**

As the Institution realize that this parameter is whole crux of International Engineering Alliance (IEA), Washington Accord of solving real time complex problems, the institution is making sincere attempts in promoting multi-disciplinary approach enabling the students to collaborate with other peer group of other disciplines. Prior to this, it is very much essential, to enable the students to understand the importance and exposure to solve problems of multi-disciplinary nature by gathering known and unknown resources from various sources to solve the problem based on well-defined research. To imitate this, open book examination is going to be introduced promoting problem solving skills and critical thinking and eliminating rote memory pattern of learning.

- f) **Describe any good practice/s of the institution to promote Multidisciplinary / interdisciplinary approach in view of NEP 2020.**

The institution has introduced two distinct programs: B. Tech. (Honors) and B. Tech. (Minors), each offering a range of specialized skills and courses that align with the future demands of various niche industries. Moreover, B. Tech. (Minors) programs with specializations have been implemented to move away from a single-phase educational approach by including courses from Science and Humanities.

To foster critical thinking and problem-solving abilities, the institution has integrated industry-relevant curriculum components, in accordance with the National Education Policy (NEP) of 2020. Additionally, the institution has embraced the Academic Bank of Credits and enabled the Multiple Entry - Multiple Exit (ME-ME) system, providing students with flexible pathways to their educational journey.

Furthermore, steps are being taken to emphasize the importance of vernacular languages, allowing students to take examinations in their native language, such as Telugu, particularly for courses of national significance.

### **Consolidated Points**

The institution is actively pursuing a multi-disciplinary education approach by incorporating mandatory open elective courses into the curriculum. Regardless of their chosen program of study, students have the flexibility to select courses in cutting-edge fields such as Machine Learning, Data Science, EV Technology, IoT, and other specialized domains. Additionally, more than 20% of the curriculum credits are dedicated to multi-disciplinary courses, alongside project-oriented ones.

Furthermore, the institution has a forward-looking vision of phasing out traditional single-stream education in favor of a trans-disciplinary

curriculum. Initially, it has introduced courses related to Liberal Arts (including Psychology, Journalism, and English for Media), General Management, Personal Management, and Universal Human Values. There are plans to implement an Open Book Examination System that incorporates 3-Dimensional Mapping, aligning with dimensions of Knowledge, Cognitive abilities, and STEM Education.

The institution maintains a highly flexible curriculum that includes innovative elements, particularly industry-integrated one-credit courses focusing on multi-disciplinary education. Every Saturday, students are engaged in a unique initiative that sends them to various industries, promoting problem-solving skills and critical thinking. Courses related to Environmental Education, Climate Change, and sustainability are already available to all students, and community engagement and service are facilitated through the National Social Service.

The institution is actively working towards offering multiple entry and exit options. It is in the process of registering under the Academic Bank of Credits (ABC) with approval from the Governing Board. Collaborations with other institutions like Viswakarma Skill University, Haryana, and The Auroville Earth Institute are being pursued. This initiative is aimed at fostering a multi-disciplinary approach, encouraging students to collaborate with peers from different disciplines.

Recognizing the importance of addressing real-time complex problems, the institution is keen on promoting problem-solving skills and critical thinking through open book examinations, moving away from rote memorization. Furthermore, the institution has introduced B. Tech. (Honors) and B. Tech. (Minors) programs in response to futuristic demand, with specialized options to diversify education and integrate industry-relevant curriculum, in line with the National Education Policy (NEP) 2020.

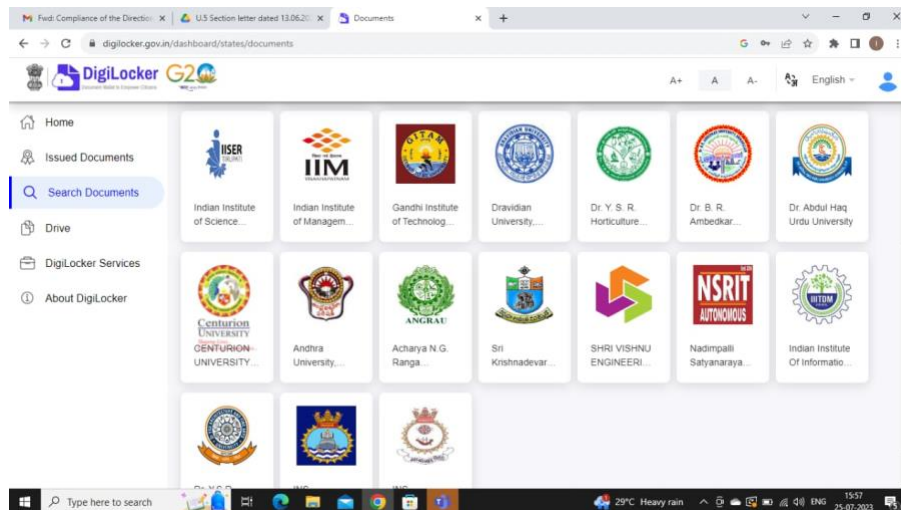
The institution is also actively engaged with the ABC portal, providing students with Multiple Entry - Multiple Exit options. Additionally, it is working on enabling responses in vernacular languages for courses of national importance.

## 2. Academic bank of credits (ABC):

- a) Describe the initiatives taken by the institution to fulfil the requirement of Academic bank of credits as proposed in NEP 2020.

Yes. The Institution is registered under Academic Bank of Credits (ABC) and the following is the status of the initiative.

- Students are registered under ABC
- Reflected in all in official documents like hall tickets enabling them to aware of the ABC IDs
- Faculty and student members are sensitized thoroughly with the core philosophies of NEP 2020, ABC, Multiple Entry – Multiple Exit (ME – ME)
- ABC grievance redressal committee is formulated
- Separate tab is created in the official website of the institution highlighting the features of ABC



- b) **Whether the institution has registered under the ABC to permit its learners to avail the benefit of multiple entries and exit during the chosen programme? Provide details.**

In the recent days, the academic rules and regulations are incorporated with the provisions of ABC for enabling Multiple Entry – Multiple Exit (ME – ME) and steps are being taken making the process institutionalized in collaborating with institutions of national repute and other popular universities in the country at large

- c) **Describe the efforts of the institution for seamless collaboration, internationalization of education, joint degrees between Indian and foreign institutions, and to enable credit transfer**

Yet to initiate.

- d) **How faculties are encouraged to design their own curricular and pedagogical approaches within the approved framework, including textbook, reading material selections, assignments, and assessments etc.**

Yes. The Institution is well equipped with faculties to design the curriculum and teaching – learning pedagogies in line with Outcome-based Education. Recently, an MoU is also made with National Institute for Technical Teachers Training and Research, Chennai (NITTTR – Chennai) for faculty competency building in few areas like pedagogical design and open book examinations systems and other academic avenues and training is planned.

- e) **Describe any good practice/s of the institution pertaining to the implementation of Academic bank of credits (ABC) in the institution in view of NEP 2020.**

1. Introduction of trans-disciplinary courses
2. Streaming out single phased education
3. Skill oriented courses
4. Industry connect courses and one credit courses
5. Inter-disciplinary electives i.e. Open electives
6. Academic Bank of Credits
7. Multiple Entry – Multiple Exit
8. Introduction of Vernacular languages
9. Good industry connect for experiential learning and project based learning
10. Mandatory credited internships and community service projects
11. Attempts to sign MoU with few organizations for student exchange and joint degree programs

### 3. Skill development:

- a) **Describe the efforts made by the institution to strengthen the vocational education and soft skills of students in alignment with National Skills Qualifications Framework**

The Institution has put a significant effort since 2021 – 2022 in signing MoU with Centre for Excellence in Maritime and Ship Building, Government of India to offer few courses in line with National Skills Qualifications framework (NSQF) viz. PCB Design, Application and use of Mentor Graphics Software, VLSI, IoT, IT workshop, Embedded Systems, Industrial Automation using PLC and Scada, Robotics, and few more with triparted MoU with Siemens, HSL, Kuka and several others. Students are being trained in all these courses for a duration of more than 200 hours in a semester in a telescopic pattern for all the batches of students every year. In addition, the institute is having dedicated soft skill trainers to train the students which is built in the regular timetable.

- b) **Provide the details of the programmes offered to promote vocational education and its integration into mainstream education.**

At present the institution has integrated IT workshop to assemble and dismantle computing gadgets into the curriculum as a credited course. Steps are also being taken to introduce few vocational courses viz. Electrical Wiring, Plumbing, Refrigeration and Airconditioning, Mobile Troubleshooting, Computer Servicing, Digital Marketing, Machining, Masonry and Automobile Servicing and Maintenance that are likely to be essential as per the additional credits that are required at the time of Multiple Exit.

- c) **How the institution is providing Value-based education to inculcate positivity amongst the learner that include the development of humanistic, ethical, Constitutional, and universal human values of truth (satya), righteous conduct (dharma), peace (shanti), love (prem), nonviolence (ahimsa), scientific temper, citizenship values, and also life-skills etc.**

Yes. The Institution has a curriculum in place to offer value- and outcome-based curriculum with few courses like ethics, IPR and Patents, Universal Human Values, and Indian Traditional Knowledge (ITK) and few more. However, the Institution is still making plans and strategies in enriching the curriculum more positive and learner centric amongst the learners. Also the Institution would like to submit a long way to go further in this regard though it is informally done through other clubs and societies.

- d) Enlist the institution's efforts to:
- i. **Design a credit structure to ensure that all students take at least one vocational course before graduating.**

Yes. The institution offers one course related to vocational flavor in form of IT workshop.

- ii. **Engaging the services of Industry veterans and Master Crafts persons to provide vocational skills and overcome gaps vis-à-vis trained faculty provisions.**

Yet to start. Plans are in progress.

- iii. **To offer vocational education in ODL/blended/on-campus modular modes to Learners.**

In line with the vision of NEP 2020, to enhance the gross enrollment ratio, the Institution has made a significant move by deploying Learning Management System. Almost, more than 150 courses in engineering stream are available in a standard LMS platform to promote Open and Distance Learning (ODL). At present, the Institute is in the process of implementing blended learning. Soon, the Institute will plan to have vocational courses in these platforms.

- iv. **NSDC association to facilitate all this by creating a unified platform to manage learner enrolment (students and workers),**

**skill mapping, and certification.**

Yet to initiate.

**v. Skilling courses are planned to be offered to students through online and/or distance mode.**

Yes. The institution's curriculum is inherently built-in with skill oriented courses as a credited courses that spread in all semesters in association with industry partners.

**e) Describe any good practice/s of the institution pertaining to the Skill development in view of NEP 2020.**

1. Promoting problem solving skills through competitive programming
2. Experienced and project based learning
3. Promoting self – directed learning through students participation in the National schemes viz. NPTEL/SWAYAM
4. Implementation of Skill Oriented courses in the software applications related to draftsman
5. IT workshop
6. One credit course in association with government organizations in line with Nationals Skill Qualifications Framework
7. Mandatory internships at three different spells including semester long internship programs
8. Enabling student centric environment
9. Implementation of courses on Value Systems and ITK

**4. Appropriate integration of Indian Knowledge system (teaching in Indian Language, culture, using online course)**

**a) Delineate the strategy and details regarding the integration of the Indian Knowledge system (teaching in Indian Language, culture etc,) into the curriculum using both offline and online courses.**

The Institution is offering few courses around Indian Traditional Knowledge (ITK) System. Recently, one faculty is professional trained in this domain at IIT Kharagpur, for a duration of 22 days and planning to offer faculty development programs for the benefit of other members of faculty and in-house soon.

**b) What are the institutions plans to train its faculties to provide the classroom delivery in bilingual mode (English and vernacular)? Provide the details.**

Recently, the institution encouraged bilingual delivery both in English and Telugu for class room delivery for the deliverables that are more complex to nurture in English. Additionally, it is working on enabling responses in vernacular languages for courses of national importance.

**c) Provide the details of the degree courses taught in Indian**

### **languages and bilingually in the institution.**

At present, it is NO. However, the Institution is having a plan to offer as B. Tech. (Minor) with specialization in ITK.

**d) Describe the efforts of the institution to preserve and promote the following:**

- i. Indian languages (Sanskrit, Pali, Prakrit and classical, tribal and endangered etc.)
- ii. Indian ancient traditional knowledge
- iii. Indian Arts
- iv. Indian Culture and traditions.

Yet to start.

**e) Describe any good practice/s of the institution pertaining to the appropriate integration of Indian Knowledge system (teaching in Indian Language, culture, using online course) in view of NEP 2020.**

Recently one of our faculty got well trained in the Indian Traditional Knowledge (ITK), at Indian Institute of Technology (IIT) Kharagpur in association with UGC and MoE. Soon it will be integrated into the curriculum enhancing the value and belief among the stakeholders by integrating technical and ITK.

### **5. Focus on Outcome based education (OBE):**

**i. Describe the institutional initiatives to transform its curriculum towards Outcome based Education (OBE)?**

The institution places a strong emphasis on implementing an outcome-based curriculum that drives outcome-based education, focusing on Skill, Knowledge, and Character Competencies. In light of this, the curriculum is meticulously structured to align with its planning, teaching and learning strategies, assessment methods, and evaluation procedures.

As an initial step, the institution has established various statutory and non-statutory committees to ensure strict adherence to the fundamental principles of curriculum design. This encompasses everything from formulating Program Educational Objectives to defining Program Outcomes (POs), which serve as actionable statements for Graduate Attributes. Additionally, the curriculum includes Program Specific Outcomes (PSOs) that meet the minimum requirements stipulated by the Professional Lead Societies of the Engineering Accreditation Commission (EAC) and ABET. All of these elements are in harmony with the department's mission and the overarching goals of the institution.

1. Initially, before formulation of the curriculum, the voice of various category of stakeholders are captured in the form of documented form to understand the needs at local, regional, national, and international height. Also, gap identification is done and timeline is fixed to offer additional inputs to attain the expected outcomes

2. The course outcomes for all the courses are formulated understanding the depth of the delivery for each course and according formulated with various cognitive levels of Revised Bloom's Taxonomy
3. The syllabus is framed based on the list of formulated course outcomes that enables the program to measure the attainment of POs and PSOs. Further customized assessment is formulated and specified in the syllabus
4. All the curriculum of the programs being offered are designed to follow multi- and trans- disciplinary approach promoting critical thinking and problem-solving skills which are the pinnacle of the outcome-based education
5. Above al, the members of faculty are also being sensitized frequently on the above aspects

**ii Explain the efforts made by the institution to capture the Outcome based education in teaching and learning practices**

The teaching – learning process is ensured and aligned with outcome-based delivery by choosing appropriate learning activities, use if appropriate teaching methods and ICT tools with appropriate assessment tools. Direct, In-direct assessment tools were developed along with Rubrics for the outcomes which are not quantifiable. Several MoUs with government and non-government organizations were done to offer industry-based delivery and integrated in the curriculum.

**iii Describe any good practice/s of the institution pertaining to the Outcome based education (OBE) in view of NEP 2020.**


- a. Curriculum promoting Critical Thinking and Problem-Solving Skills
- b. Multi- and trans- disciplinary approach
- c. Separate learning platform Rubricsedu.com for promoting OBE
- d. Implementation of LMS across the campus promoting blended learning
- e. Steps to deploy STEM education
- f. Introduced Semester Away Program for Multiple Entry and Exit Option in compliance with ABC
- g. Provision of credited internship programs including semester long internship program
- h. Steps towards transformation of STEM to STEAM
- i. Industry integrated project oriented and experiential learning for skill development in line with NSQF

**6. Distance education/online education:**

**a) Delineate the possibilities of offering vocational courses through ODL mode in the institution.**

1. The Institution has already deployed in the last two years a structured Learning Management Platform and approximately 3 TB of data (i.e. Engineering contents) are available to promote ODL and thereby to enhance gross enrollment ratio. Hence the institution has tremendous

- possibilities to offer vocational courses addressing skill-oriented courses through online mode
2. The Institution is having a capsule recording studio as well as FM station that are expandable for broadcasting along with relevant manpower
- b) Describe about the development and use of technological tools for teaching learning activities. Provide the details about the institutional efforts towards the blended learning.
1. As already mentioned, the Institute has well established Learning Management System promoting online teaching – learning methods including blended learning
  2. Faculty members are aware of using different ICT tools viz. virtual meeting platforms, use of LMS, integrating multiple LMS platforms, developing non-skippable video contents, insertion of online assessment ensuring the learning and so on
- c) Describe any good practice/s of the institution pertaining to the Distance education/online education in view of NEP 2020
1. Deployed Learning Management Platform with good bandwidth of internet connection
  2. Competent faculty to develop contents for vocational courses
  3. Provision for live broadcasting of video contents

  
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