GOVERNMENT OF INDIA
MINISTRY OF EDUCATION
DEPARTMENT OF HIGHER EDUCATION

RAJYA SABHA
UNSTARRED QUESTION NO.2271
ANSWERED ON 09.08.2023

New engineering degree courses

2271 Shri R. Girirajan:

Will the Minister of **Education** be pleased to state:

(a) whether Government has new engineering degree courses covering the subjects Artificial Intelligence, Virtual Reality, Internet of Things, Big Data Management, Reverse Informatics, cloud computing and Digital intelligence and if so, the details thereof;
(b) the steps taken by Government to include latest innovations and technological advancements in Graduate Engineering curriculum in various Universities, Colleges and special institutions in the country; and
(c) the effective measures taken by Government to bridge the industry and academia to harness job opportunities for future generations?

ANSWER

MINISTER OF STATE IN THE MINISTRY OF EDUCATION
(DR. SUBHAS SARKAR)

(a) to (c): Government of India announced the National Education Policy (NEP) 2020 to outline the vision of India's new education system. NEP 2020 is the first education policy of the 21st century and aims to address the many growing developmental imperatives of our country. This Policy proposes the revision and revamping of all aspects of the education structure which includes multi-disciplinary and holistic education integrated with skills; outstanding research; developing critical and creative thinking etc. with greater industry-academia linkages to create a new system that is aligned with the aspirational goals of 21st century education, including SDG4, while building upon India's traditions and value systems. NEP also stipulates that particular attention will need to be paid to emerging disruptive technologies that will necessarily transform the education system.

To achieve above objective, the Government has taken several steps such as:

- All India Council for Technical Education (AICTE) has constituted a committee under the chairmanship of Dr. B.V.R. Mohan Reddy, Chairman, Board of Governors, IIT, Hyderabad for preparing short term and long-term perspective plan. Committee submitted its report. As suggested by committee, AICTE has revised the model curriculum and granted approval in new emerging engineering and technology areas, such as Artificial Intelligence, Internet of Things, Blockchain, Robotics, Quantum

Computing, Data Sciences, Cyber Security, 3D printing and Design and National & international Hackathon, to its approved institutions in Diploma, Undergraduate (UG) and Postgraduate levels.

- AICTE has introduced Bachelor of Technology (B.Tech.) in Data Science and Artificial Intelligence (AI), Very Large-scale Integration (VLSI) Design & Technology and Diploma in IC manufacturing. Option of elective courses (Major/Minor) in the new emerging areas has also been made available for the students.

- AICTE has established Idea Development Evaluation and Application Labs (IDEA Labs) in AICTE approved institutions, encouraging students for application of science, technology engineering and mathematics (STEM) fundamentals towards enhanced hands-on experience, learning by doing and even product visualization. IDEA Labs make engineering graduates more imaginative and creative, besides getting basic training in skills like critical thinking, problem solving, design thinking, collaboration, communication, lifelong learning etc.

- The University Grants Commission (UGC) has notified National Credit Framework (NCrF), which is an enabling framework that lays down basic principles of creditisation of learning from various dimensions, such as academic, vocational, and experiential learning. It is a single meta-framework to seamlessly integrate the credits earned through school education, higher and vocational and Skill education.

- The UGC published the National Higher Education Qualification Framework (NHEQF) on 11th May, 2023 to describe higher education qualifications leading to degree/diploma/certificate in terms of learning outcomes. It facilitates transparency and comparability of higher education qualifications at all levels.

- The University Grants Commission facilitates higher education institutions across the country to provide skill-based education under National Skills Qualifications Framework (NSQF). The skill programmes promote active linkages between the academia and the industry as the relevant industry partners help the institutions in framing the course curriculum, evaluating the skill component of the syllabus and offering internship to students.

- Academic Bank of Credits (ABC) has been established where students can accumulate credits from prior learning experience. ABC also enables student mobility among higher educational institutions and helps in seamless integration of skills and experiences into a Credit Based System.

- UGC has drafted guidelines on Sustainable and Vibrant University Industry Linkage System for Indian Universities to promote Research and Development Thrust through University Industry.

- In order to enable Higher Education Institute (HEIs) to engage industry experts and professionals as guest faculty in HEIs to share the experience and knowledge, UGC has developed guidelines for engaging Professors of Practice in Universities and colleges.

- A committee comprising of industry, academicians and administrators provided the requirements of the semiconductor Industry across various levels. Accordingly, AICTE has developed and allowed its approved institutions to conduct programme based on industry requirements.

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