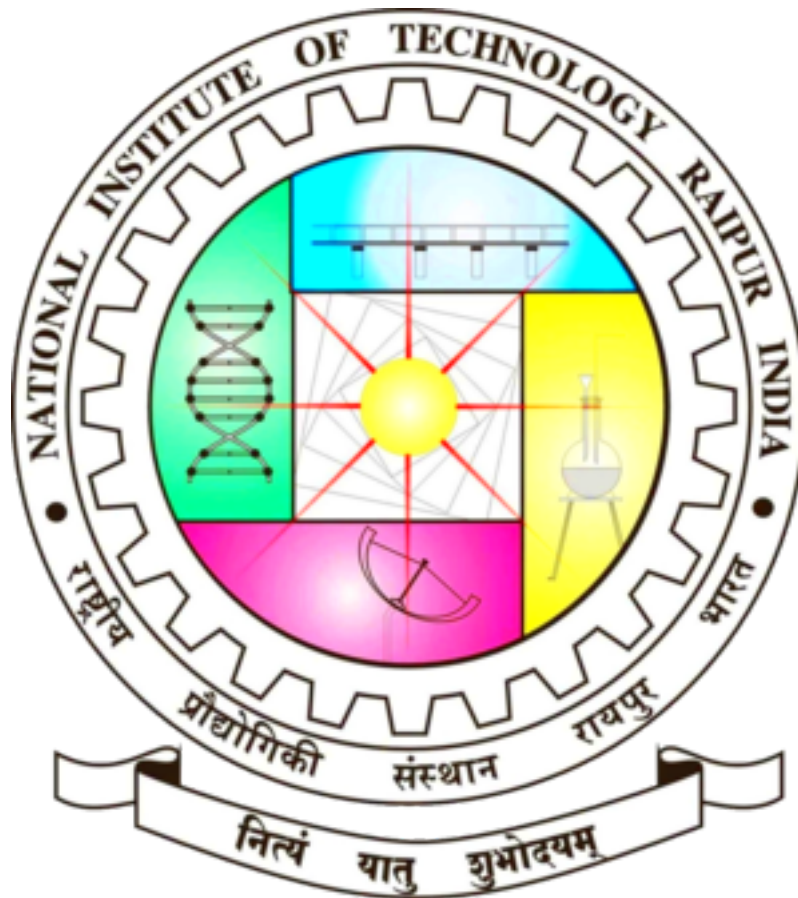# BASIC BIOMEDICAL ENGINEERING(EMERGING TECHNOLOGIES IN HEALTHCARE....)

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HERE ARE FEW OF THE EMERGING TECHNOLOGIES IN HEALTHCARE INDUSTRY...

1 VIRTUAL REALITY-:

Virtual reality is an innovative tool with many applications, from teaching autistic children communication and social skills to engaging patients in activities and games for rehabilitation purposes.VR solutions help healthcare providers to create patient summaries and notes, answer physician requests, pend orders and create referral letters. Virtual reality can be used across various settings such as surgery centers, hospitals, emergency rooms, home visits, medical offices, urgent care clinics, pop-up clinics, and telemedicine.

2 ARTIFICIAL INTELLIGENCE-:

With the potential to radically transform healthcare, artificial intelligence can help professionals make better judgments and reduce human error and the risk of preventable scenarios. From radiology tools and immunotherapy for cancer patients to identifying infectious disease patterns, advanced technology helps develop more efficient and precise interventions. As learning algorithms evolve and become more accurate, they are likely to significantly impact healthcare services, including diagnostic approaches, treatments, and care processes.

3 BLOCKCHAIN-:

The term Blockchain denotes a shared immutable record, of a chain of transactions, each comprising one block, with the blocks being held together by cryptographic keys.Better data sharing between healthcare providers means a higher probability of accurate diagnoses, more effective treatments, and the overall increased ability of healthcare organizations to deliver cost-effective care. Blockchain technology can allow various stakeholders in the healthcare value-chain to share access to their networks without compromising data security and integrity, by allowing them to track data provenance as well as any changes made.At present, electronic health records allow automatic updating and sharing of medical information on a given patient within an organization or network of organizations only. This could be extended if the information was organized such that a set of information on the topmost layer of the blockchain was only that which was not PHI or personally identifiable information.

4   PERSONALIZED MEDICINE-:

Personalized medicine is an emerging practice of medicine that uses an individual's genetic profile to guide decisions made in regard to the prevention, diagnosis, and treatment of disease. Knowledge of a patient's genetic profile can help doctors select the proper medication or therapy and administer it using the proper dose or regimen.Because it is based on each patient's unique genetic makeup, is beginning to overcome the limitations of traditional medicine. Increasingly it is allowing health care providers to shift the emphasis in medicine from reaction to prevention,predict susceptibility to disease.

5   3D PRINTING-:

Unlike traditional methods, in which products are created by shaping raw material into a final form through carving, grinding, or molding, 3D printing is an additive manufacturing technique that creates three-dimensional objects by building successive layers of raw material such as metals, plastics, and ceramics. The objects are produced from a digital file, rendered from a magnetic resonance image (MRI) or a computer-aided design (CAD) drawing, which allows the manufacturer to easily make changes or adapt the product as desired. Advances in medical 3D printing technology have made tremendous contributions to fields throughout healthcare. For patients, new tools and therapeutic methods developed through 3D printing can bring new degrees of comfort and personalization to treatment. For doctors, this newly accessible technology allows for a greater understanding of complex cases and provides new tools that can ultimately result in a higher standard of care.From surgical planning models to 3D printed vasculature and bioreactors, read on to discover five ways 3D printing in healthcare is taking off and why many medical professionals are excited about the potential of this technology in medicine.

6   5G-:

5G opens entirely new horizons for telehealth, the technology that allows patients to connect virtually with doctors and other healthcare providers, communicating via real-time video or live chat.A 5G network means that these large files can be transmitted quickly between doctors and hospitals, reducing the time that would otherwise be needed to move them across often underpowered legacy wired networks prone to cuts and other service interruption issues. The reduction in time that 5G brings means more timely diagnostics, second opinions, treatment starts and adjustments.With 5G-enabled wearable devices, healthcare providers can monitor patients remotely and gather real-time data for preventative care and other individually-tailored healthcare provision.

7 QUANTUM COMPUTING-:

Quantum Computing and the Healthcare industry are unique yet advanced collaborations. The healthcare industry notoriously develops itself with the help of emerging and latest technology. Hence, it was just time until quantum computing completely redefine the healthcare industry.Quantum Computers certainly work toward applying the unique characteristics of quantum physics. Moreover, characteristics like superposition, entanglement, and quantum interference are harnessed into computing. It also initiates new concepts for traditional programming techniques.Quantum Computing enables healthcare professionals to model complicated molecular interactions at an atomic stage. Hence, it will play a major role in medical research and drug discovery. As a result, professionals will soon be able to model all 20000 proteins in a human genome. It will also begin to simulate interactions with models of existing and new drugs.