Government polytechnic Nanded

Mindler

Information technology Association of America

GOVERNMENT POLYTECHNIC, NANDED

DEPARTMENT OF INFORMATION TECHNOLOGY

VISION

Become premier centre in the Information Technology with value based education that will prepare students for ever changing technological challenges of 21st century.

MISSION

M1: To train the students in the latest technologies.

M2: Provide an environment that inculcates ethics and effective soft-skills.

M3: Develop the skill sets among students that will benefit employer and society.

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Program Educational Objectives (PEOs)

PEO1
Become competent Information technology engineers to work as a programmer or an administrator in a team or as a individual.

PEO2
Pursue higher studies in relevant field of engineering with a desire for lifelong Learning

PEO3
Become a successful professional with ethical and societal responsibilities

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Program Outcomes (pos)
(what s/he will be able to do at the entry point of industry soon after the diploma program)

1.Basic and discipline specific knowledge :
apply knowledge of basic mathematics, science and engineering fundamentals and engineering specialization to solve the engineering problems

2.Problem analysis :
identify and analyse well-defined engineering problems using codified standard methods

3.Design/ development of solutions :
design solutions for well-defined technical problems and assist with the design of systems components or processes to meet specified needs

4.Engineering tools, experimentation and testing :
apply modern engineering tools and appropriate technique to conduct standard tests and measurements

5.Engineering practices for society, sustainability and environment :
apply appropriate technology in context of society, sustainability, environment and ethical practices

6.Project management :
use engineering management principles individually, as a team member or a leader to manage projects and effectively communicate about well-defined engineering activities

7.Life-long learning :
ability to analyse individual needs and engage in updating in the context of technological changes

Program Specific Outcomes (psos)
(what s/he will be able to do in the information technology specific industry soon after the diploma program)

1.Modern information technology:
use latest technologies for operation and application of information.

2.Information technology process:
maintain the information processes using modern information and communication technologies

Table of Contents

Introduction

- ITAA (Information Technology Association of America)defined information technology as being the study, design, development, implementation, support and/or management of any computer based information system.

Information Technology

- Of many revolutions that have changed the world, it is Information Technology that rules the roost in the 21st century.
- IT has led to complete metamorphosis of society.
- Life without technology is paralyzed today.

Latest Trends in Information Technology

- Internet of Things
- Virtual Reality
- Big Data Analytics
- Cloud Computing
- 5G Wireless Technology
- Artificial Intelligence
- Enterprise Software
- Blockchains
- Seamless voice recognition
- Wearable Technologies

What is Virtual Reality

Virtual Reality (VR) is the illusion of a Three-Dimensional, Interactive, Computer-Generated Reality, where Sight, Sound, and sometimes even Touch are simulated to create Pictures, Sounds, and Objects that actually seem real.

Types of Virtual Reality

1. **Immersive VR :**

- Completely immerse the user's personal viewpoint inside the Virtual 3D- World.
- The user has No Visual Contact with the physical world.
- Often equipped with a Head Mounted Display (HMD).

2. Window on World (WOW):

- Also known as Desktop VR.
- Use of a Monitor to display the visual world.
- Does Not require Special Hardware.
- Low Cost , Low Performance, Less Immersion.

Source: www.slideshare.net/virtual-reality

Types of Virtual Reality

3. Telepresence :

- Real-time Telepresence-
  - Interaction are Reflected to some real world objects.
- Delayed Telepresence
  - Interactions are Recorded, and later operations are applied to the real-world object.

4. Augmented Reality :

- The seamless merging of Real space and Virtual space.
- Integrating the Computer-Generated Virtual objects into the Physical world which become in a sense an equal part of our natural environment.

Source: www.slideshare.net/virtual-reality

Applications of VR

1. **Entertainment and Movies :-**

- 360-Degree cameras or VR cameras, that have the ability to record in all directions.
- VR cameras are used to create images and videos that can be viewed in VR.
- The experience allows users to interact with the characters and worlds.

Source: www.slideshare.net/virtual-reality

Problems and Advantages

- Motion sickness / Simulator sickness
- Low-Accuracy
- Expensive
- Bit lack of integration between application
- packages.

✓ Cost-saving

✓ High-level contact between participants in VR.

✓ High-Accuracy system

✓ VR enables us to experience the virtual world that is impossible in real world.

✓ VR is changing our life, eventually VR will increasingly become a part of our life.

✓ The Best of VR is Yet to Come

BIG DATA ANALYTICS

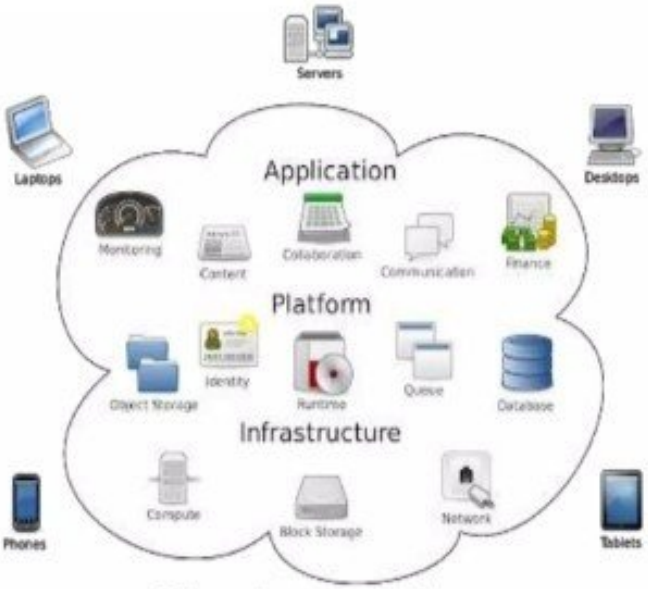
Evolution Of Technology

Source: www.edureka.com/big-data-and-hadoop

Cloud Computing

An environment created in a user's machine from an on-line application stored on the cloud and run through a web browser.

In simple language Cloud computing is using the internet to access someone else's software running on someone else's hardware in someone else's data center.



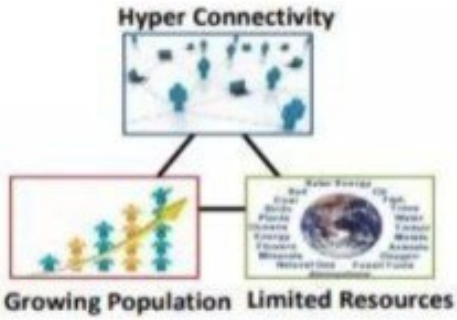
Cloud computing


3G
5G
5G WIRELESS TECHNOLOGY
1G
Analog voice
2G
Digital voice
3G
Mobile broadband
4G LTE
Faster/Better
5G
1980s
1990s
2000s
2010s
2020s


Wireless Technology
Definition
No such definition available
For
5G
W/L
“Having No Wire”.

5G DRIVERS

- ✓Number of connections and also the volume of data over wireless networks continuously growing at a significant rate
- ✓Users more demanding on quality & price
- ✓Sustainability of mobile broadband business (ever increasing traffic, higher TCO and flattening ARPU)



Spectrum:
finite resource, scarce & expensive

- ✓3G & 4G both promised improvements in NW capacity, data rate, efficiency, cost and quality
- ✓ 5G will be no exception but the sheer scale of the challenges this time makes 5G research different
- ✓5G needs to embrace a significant leap forward in terms of targets

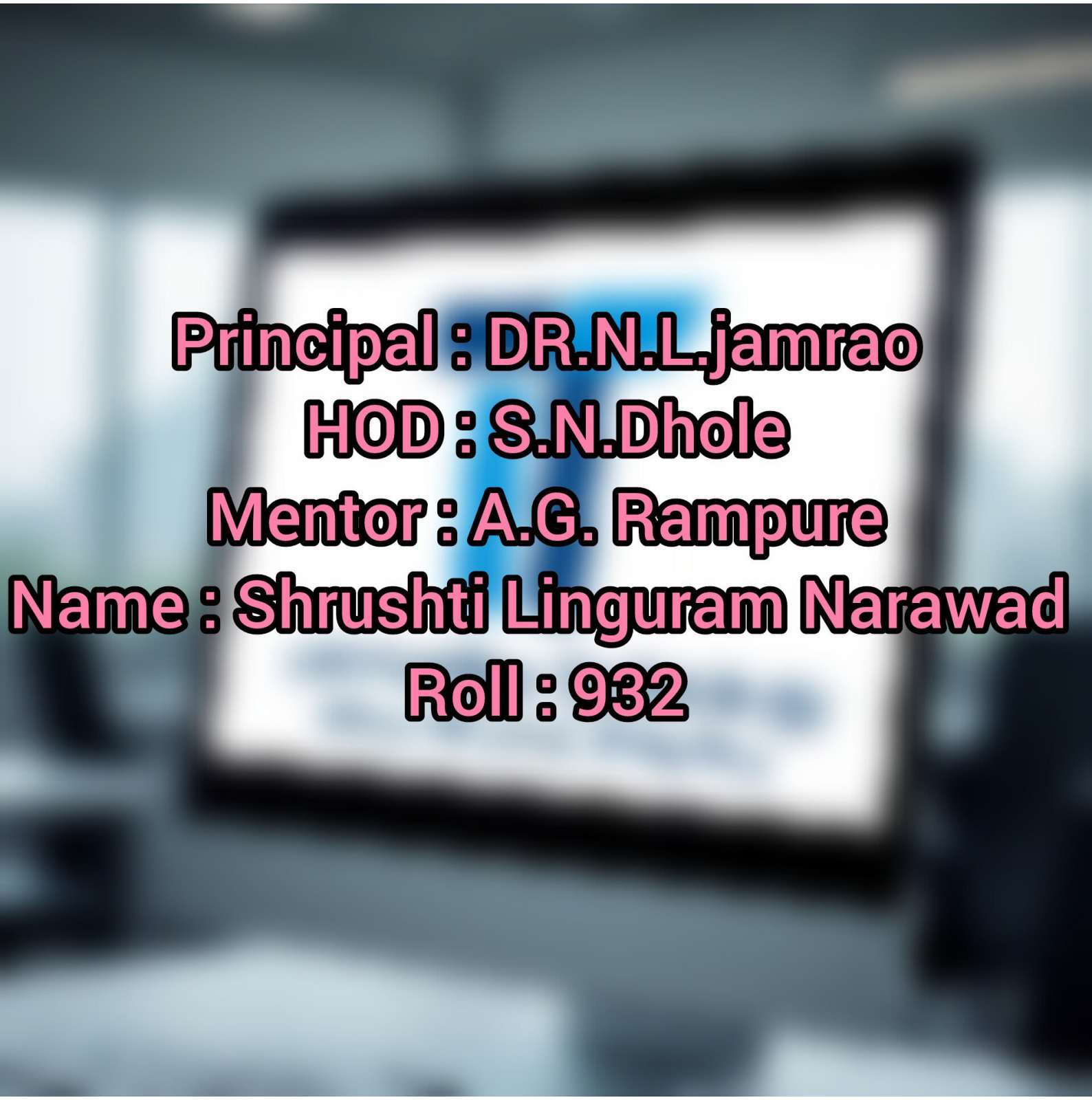
Source: Dr Shahram G Niri, Reshaping mobile broadband with 5G communication technologies, 5G World Summit 2014

Features of 5G Technology

- 5G technology is going to be a new revolution in wireless systems market.
- As data traffic has tremendous growth potential under 4G. existing voice centric telecom hierarchies will be moving flat IP architecture where base stations will be directly connected to media gateways
- 5G will promote concept of Super Core, where all the network operators will be connected one single core and have one single infrastructure, regardless of their access technologies.
- 5G will bring evaluation of active infra sharing and managed services and eventually all existing network operators will be MVNOs (Mobile virtual network operators).
- 5G technology would offer high resolution for wireless gadget users and bi-directional large bandwidth shaping.
- The advanced billing interfaces of 5G technology makes it more attractive and effective.
- The high quality services of 5G technology is based on Policy to avoid error.

Conclusion

- IT is now called industry 4.0 which means artificial intelligence, smart devices, big data, social media.
- IT and computer network technology is continuing to develop in new and interesting ways.
- Some key developments that have transpired over the past several years include:
- The growing popularity of cloud computing and cloud storage
- Improvements to mobile (cellular) network infrastructure: 5G is yet to come.
- In 2018, an array of new devices targeted at the Internet of Things (IoT) market will undoubtedly compete for our attention.
- The Pace of IPv6 Rollout Continues to Accelerate.
- The field of AI is growing very fast and develops computers and machines with human-like intelligence which is dangerous for the humanity.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