



MAHATMA GANDHI MISSION'S COLLEGE OF ENGINEERING & TECHNOLOGY

Affiliated to University of MUMBAI & Approved by AICTE, New Delhi
An ISO 9001: 2000 Certified Institute
Sec.18, Kamothe, Navi Mumbai -410209

DEPARTMENT OF BIOTECHNOLOGY

Guest Lecture by Dr. Raman P. Yadav on 09.04.2018

Topic: Innovation and Research

Dr. Raman P. Yadav delivered a lecture on "IPR & Biosafety" to SE, TE & BE Biotech students from 2 pm to 4 pm.

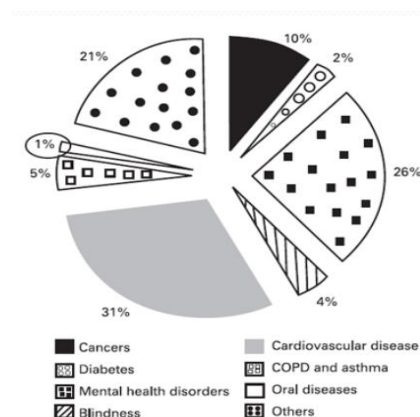
Major topics covered were as followed:

1. Diseases

- Global disease burden is showing worrying trend.
- The proportion of the burden of NCDs is expected to increase to 57 % by 2020.
- By 2020, chronic diseases will account for almost three-quarters of all deaths worldwide.
- Almost half of the total chronic disease deaths are attributable to cardiovascular diseases; obesity and diabetes.

2. Factors responsible for disease development are Modern dietary habits and Physical activity pattern.

- Poor sanitation and lack of clean water
- Food type - Interaction with infectious agents
- Errors in genetic makeup
- Accident & injury
- Living or working in a unhealthy environment
- Unknown factors



3. Important contributors in better disease management: Vaccines and pharmaceutical/bio-pharmaceuticals have played crucial role in diseases management

- Disease detection techniques
- Availability of a wide range of vaccines and pharmaceutical/ bio- pharmaceuticals
- Better sanitation practices
- Availability of adequate food and safe drinking water

- The emerging societal situations and environmental consciousness
- Interdisciplinary scientific intervention and the basic understanding of etiology of disease

4. Future of Disease Detection Techniques:

- Diagnostic accuracy
- Cost of detection
- Early detection
- Prediction
- Non-invasiveness

5. Some Breakthrough Technologies: Nature's design and engineering is truly inspirational for technological development.

- Termite inspired Heating & Cooling Air Conditioning Systems
- Making building blocks – cement from CO₂ inspired by Mollusca
- Plastic from CO & CO₂ inspired by Citrus
- Drinking water inspired by Namibian bug

6. Research and Innovation

Research comprises "creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications."

7. Criteria for Patentability of Research

- Novelty
- Non obviousness
- Useful
- Industrial applications

8. Prior Art

- Any information in public domain.
- Why do you need prior art search
- Sites related to prior Art Search-Scopus, JHU, USPTO etc.

9. Process for filing Patent

- Submission of Application
- Publication and examination of application.
- Opposition to grant of patent
- Grant and Sealing of Patent

VISIT TO OMICS-CENTRAL RESEARCH LABORATORY, MGM IHS

Staff and students of BE and TE Biotechnology from MGM CET, Kamothe visited the OMICS CRL situated in the MGM HIS campus on 9th April, 2018 during the Departmental Slot, i.e., from 4 pm to 6 pm.

The students were attended by Dr. Raman P. Yadav, Technical Director, OMICS Lab MGMIHS and his research scholars Amita Bhagit, Chandana Kulkarni, Priyanka Rathod and Kshitija Rane.

Various facilities that the students visited were as follows:

- 1. Cell Culture Facility:** It comprised of CO₂ Incubator, Deep freezer and Toxicological study chamber.
 - Parasite culture (reversal of cell culture)
 - Microbial culture (for metabolic engineering)

2. Synthesis of Biological nano-particles

3. **Production of Quantum Dots:** 1st time in India. Used to distinguish between latent and active tuberculosis

4. **Spectro-fluorometer:** A spectrofluorometer is an instrument which takes advantage of fluorescent properties of some compounds in order to provide information regarding their concentration and chemical environment in a sample.

5. **HPLC:** HPLC has grown to be the most popular and versatile of all analytical techniques in laboratories today. HPLC can be used for applications in such diverse industries as food and beverages, forensics, pharmaceuticals, drug discovery, environmental, and petrochemical.

6. **Level –II Biosafety Cabinet:** Level 2 Biosafety Cabinets are designed to provide protection to operator, environment and materials inside the workspace. These **Class II BSCs** are utilized for containing low-to-moderate risk biohazardous materials. These cabinets have downward airflow and HEPA filters that re-circulate air providing required level of protection from microorganisms and aerosols. As these cabinets are extensively used in drug preparation, chemotherapy preparation, clinical research, medical and pharmaceutical sectors, life science and industrial laboratories etc. it must follow relevant application specific standards.

7. Genomics applications:

- DNA isolation
- Rt-PCR
- SDS PAGE
- Gel staining techniques
- Western Blotting techniques



















