NEWSLETTER

(2020-2021) Issue on- July 2021

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BIOTECHNOLOGY

Message from HOD Desk

I welcome all the students & their parents to the Department of Biotechnology. Biotechnology is an essence of today's world. We are committed to providing not only the technical education to our students but also the leadership qualities through which they can create employment to others. Noida Institute of Engineering & Technology (N.I.E.T) has been established with the legacy of 20 years of academic excellence as its founding pillar. The sole vision of N.I.E.T. is to produce good technologies with human values and Indian ethos. Skill & knowledge relevant to real world problem are inseminated to produce dynamic, socially conscious, and sensitive human beings. N.I.E.T. focuses on holistic development of the students by a combination of both curricular and extracurricular activities. We believe that to develop a tender mind we need to go beyond classroom teaching, and we realize that N.I.E.T., which helps to make the students industry ready.

VISION

To become a prime influencer in the field of Biotechnology and provide a vibrant learning environment to the students that will have a trans-formative impact on the society in terms of academics, research, and entrepreneurship.

MISSION

M1: - To create educational experience targeted on a deep understanding of interdisciplinary sciences & engineering with the focus on development of industry aligned skills.

M2: - To expertise in research, innovation and entrepreneurship supporting the overall growth of the biotechnology academia and industry.

M3: - To inculcate leadership qualities in students to handle competitive edge, social & ethical challenges for a better world.

PEO's

PEO 1: Students will acquire knowledge and skills in the frontier areas of biotechnology and will be able to solve societal problems individually and in teams.

PEO 2: Students will be able to think creatively and ethically about the use of biotechnology to address local and global problems.

PEO 3: Students will be able to implement the engineering principles to biological systems for development of industrial applications, as well as entrepreneurship skills to start biotech industry.

PSO's

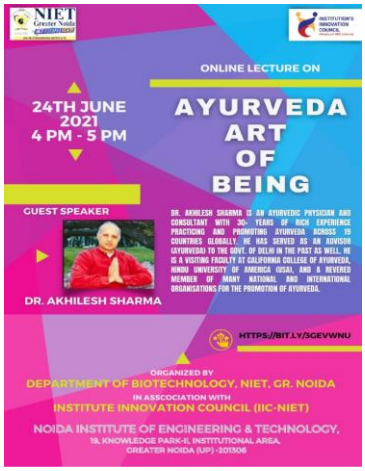
PSO1: To apply knowledge of basic sciences and biotechnological techniques to modify living organisms.

PSO2: To design, optimize, analyse & scale up bioprocesses to develop useful products with societal consideration.

PSO3: To generate, analyse & interpret biological data using Insilco & other relevant approaches.

DEPARTMENT HIGHLIGHTS

- Department of Biotechnology organized a 6-day workshop for its students which covered all the latest biotechnological research and innovations in May 2021.
- Department of biotechnology in collaboration with NIET-IIC organized a workshop on AYURVEDA: Art of being" by Dr. Akhilesh Sharma, Ayurvedic Physician and consultant, Advisor (Ayurveda) to the Govt. of Delhi, for students of all department and faculty members on 24 June 2021. The lecture helped the students, faculty, and researchers to unzip the potential of Ayurveda in the betterment of life. The lecture focussed on developing the interest of participants in research and innovation related to Ayurveda.



- Department of biotechnology in association with Institute Innovation council (IIC)-NIET organized an online lecture on Research writing process by Dr. Deepak Gola, Assistant Professor, Department of biotechnology, NIET. The lecture helped the students, faculty, and researchers to unzip the potential of reference management software: Mendeley. Apart from that he also inspired and motivated participants to take initiative in research writing.

STUDENT ARTICLES

The Effect of Covid-19 on air quality in India: a Perspective

Corona virus disease- 2019 (COVID-19), an infectious disease identified in late December 2019, in Wuhan city of China, was declared a pandemic by the World Health Organization. The novel corona virus disease (COVID-19) pandemic poses a cruel option to the world: the society and economy. It revealed the vulnerabilities and strengths of each country and has taught us a series of lifelong lessons. As we are aware of the occurrence of pandemic which led to a kind of pause to our daily life and had several perils, there were some perks as well like the climatic and environmental condition. As the pandemic occurred in our nation i.e. corona virus it had some positive effects in our nation largely with respect to climatic conditions and a major problem of global warming especially due to cut back in vehicles on the road and crystal clear air in many cities. After COVID 19 we need to understand that our growing economy needs to respect the carrying capacity of nature. This perspective provides evidence of significant changes in air quality of the Indian region during the government lockdown order to reduce the effects of COVID-19. According to previous study, it can be considered that the massive reduction of aerosol concentration during quarantine, novel corona virus might paradoxically have reduced the percentage of deaths during the period, by significantly reducing the percentage of fatalities due to degradation of air quality. Amidst the devastating Covid-19 pandemic, a rare positive has been the many global decrease in pollution levels. Many researchers have hypothesized that the drop by pollution levels may currently be saving a big number of lives, not only by reducing individuals' susceptibility to Covid-19, but also by preventing a number of the world's seven million annual deaths thanks to pollution exposure. It's clear that many cities are breathing translucent air and pollution spurned mostly on accident because of the corona virus.

By: Supriya Rai (4th year)

The Paradox of Life

Each of us, now fully functioning adults, were initially formed from tiny 5-day old embryonic stem cells. Religion may say we truly are only our souls, and everything surrounding us, a mere illusion. But to science, our genes define us. Ever wondered how our microscopic cells can retain information for a myriad of tasks, all with the same genetic material? Imagine the trillions of cells, that can sense, attack, and create biomolecules, and have evolved over millions of years to make you who you are today. And there are so many possibilities for us to be crippled, be randomly afflicted by serious mutations. For the environment around us, holds the omnipotence to mutate our genes in an absurdly fascinating manner. Mutagens surround us, in every possible way, from the air we breathe to the food we eat, especially in the modern lives that we lead. Your genetic material could be undergoing a life-altering mutation, right here, right now, wherever you are reading this from, and you could never help it. Yet, despite all the opportunities available for you to be dead, or worse, a crippled vegetable, here you are – alive, thriving, breathing, sensing, and functioning. And as cliché, as it sounds, the universe clearly has a purpose for you. You are here for a reason. A simple example would be UV radiation. UV mutagenesis occurs at about 500-1000 reactions on the dermal layer, for every minute of exposure to the EM radiation. Imagine, if we were to be mutated at such an alarming rate, every one of us would have invariably ended with melanoma, for every minute that we spent playing outside, under the scorching heat of the day. But how are we still normal? Naturally, for every mutation, our cells have a DNA damage repair system, that identifies the specific point or region of aberration, and employs nucleotide excision repair enzymes that attack the modified nucleotides and replace them with the correct ones. This is only one of the amazing ways our cells repair themselves. Even during cell division, the cellular system constantly ensures the integrity of the DNA, before transitioning into the subsequent phases of the cell cycle. To think of it, it is quite amusing that we, who presume ourselves so mighty, are indeed only fragile entities clinging on to a few tiny biomolecules, to keep us alive.

By: Muskan Gupta (2nd Year)

Pandemic: A Dark Portal and The New Normal!

The current COVID-19 pandemic originated in the Wuhan province of China, where pneumonia-like cases were observed during the end of December 2019. The increasing number of cases alarmed the Chinese government. Scientists from the Wuhan Institute of Virology and the Chinese Academy of Sciences could isolate the virus from the Vero E6 cell lines and the Huh cells. The virus was identified early in January 2020, and a few days later its genetic sequence was shared publicly. The virus shared almost 94% sequence similarity with SARS-CoV-1, and on 11th February 2020 ICTV announced the name as "severe acute respiratory syndrome coronavirus 2" or SARS-CoV-2. The virus quickly spread within different parts of China, and within a short period, the neighbouring nations got affected too. On January 20th, 2020, Japan, Thailand, and South Korea reported their first case, and on January 21st in Washington, USA recorded its first case. Europe found its first case in France on January 24th, 2020, and soon it spread to eight other countries within Europe. COVID-19 was then declared as a "public health emergency of International concern" by the World Health Organization. Mortality rate due to the novel coronavirus was rapidly increasing, and by February it had crossed 900 in China. In March, the cases had increased exponentially in all of USA, and Italy was the worst hit nation. Back home in India, Kerala reported the first case, and in March, cases had significantly increased. Hence, India launched its first lockdown on March 25th, 2020. As cases kept on increasing through April, Lockdown 2.0 followed. Over almost 1.5 years, waves of the pandemic kept lashing across different countries and is continuing to do so. India suffered the most dreadful blow during the peak of the 2nd wave around April 2021. Mortality increased manifolds, the health system crippled and hit rock bottom, scarcity of oxygen and beds in hospitals kept on increasing, and the crisis was nothing short of a nightmare. During this time, if it was not for the frontline-workers, we would have never seen the clear light of day. The doctors and nurses worked tirelessly in hospitals, wearing the gruesome PPE kit to help COVID patients and provide them with the best treatment. They are the real heroes who dedicated their time solely to serve the ailed and couldn't even visit their own homes for days, in fear of transmitting the virus.

By: Shivangi Maurya (2nd Year)

"You are Smiling, All Dressed Up; How can you be Depressed?"

"Why are you always sad?", "Why do you have mood swings so often?", "It's just a phase, you will get over it soon", "Why do you panic so much?", "Why do you need to go to a psychologist? Are you crazy or what?" These comments are nothing new for patients suffering from psychological disorders. A huge fraction of the world's total population gets diagnosed with mental disorders every year, nevertheless a lot of cases go unreported due to the public stigma surrounding mental health. This is also a prime reason behind the inadequate attention and treatment received by the patients. Several psychiatric disorders even lead to the development of suicidal behaviour. Susceptibility to psychiatric disorders, just like any other physical health problem, is controlled by a lot of factors, including genetic, environmental, and physiological ones. Structural and functional changes in the brain, and neurotransmitter imbalances have long been associated with the development of these disorders. Abnormalities in the abundance and improper functioning of the hypothalamic-pituitary-adrenal (HPA) axis, neurotrophic factors, sex steroids, inflammatory cytokines - all lead to altered gene expression, epigenetic changes, neurotransmitters and intracellular signalling that amounts to disrupted neuronal function in these cases. One very important and widely studied protein involved in the major depressive disorder is the Brain Derived Neurotrophic Factor (BDNF), which is involved in the activity-dependent formation and maintenance of synaptic connections. Expression of the BDNF gene has been found to be significantly reduced in patients diagnosed with depression. A human BDNF polymorphism, Val66Met, is known to block the processing and release of mature BDNF, causing neuronal atrophy in the hippocampal and prefrontal cortex of brain in mice carrying this allele. When subjected to early life stress or trauma, carriers of this allele are at an elevated risk of developing depression. Considerable differences in DNA methylation levels of the CpG islands of promoter I and promoter IV of the BDNF gene have been observed in healthy individuals in comparison to depressed individuals, and higher methylation of the promoter VI has been observed in depressed patients with a history of suicide attempts. The DNA methylation status of BDNF gene promoters has been shown to serve as a biomarker in psychiatric disorders.

By: Hreetabh (3rd Year)

Artificial Designing of High Tensile Spider Silk

Spider dragline silk is known to be one of the naturally produced strongest and toughest materials, even stronger than steel. The spider silk is composed of spidroin proteins MaSp1 and MaSp2. These fibres contain an ordered β-sheet arising from polyalanine sequences and a helical structure dominated by flexible glycine-rich sequences. The hydrophobic polyalanine sequences are responsible for the high tensile strength, whereas the hydrophilic glycine-rich regions are responsible for the links between the crystalline domains as well as the elasticity of dragline fibre. But natural silk cannot be obtained conveniently owing to the territorial and aggressive behaviour of the spiders. Recombinant DNA technology has been a great help in providing an alternative approach. One of the methods was obtaining the 60 kDa recombinant proteins from the spider Araneus diadematus and expressing them in E. coli host. The fibres spun with this recombinant spider protein exhibited mechanical property like the natural counterpart, but the crystallinity was compromised, and the tenacity was 4.2-fold lower. The pH gradient which persists in the silk gland of the spider triggers the transformation of spidroin that is initially stored as random coils, into β nanocrystals. Difficulty in replicating the natural pH environment artificially hampered the crystallinity of recombinant fibres. So, to develop a superior silk fibre that could achieve gigapascal tensile strength higher than 150 MJ/m3 toughness, researchers integrated the use of amyloid peptides. Amyloids represent a large group of structural proteins in which β-strands align perpendicular to the fibril axis and can form highly ordered cross-β protofilaments. The strong non-covalent interactions and hydrogen bonding between neighbouring β-strands conferred the extraordinary mechanical properties of the amyloid fibres. Polymeric amyloid peptides can form cross β structures which were implemented to produce β-nanocrystals. This property of amyloids was exploited to spin them into strong macroscopic silk fibres. A hybrid proteinaceous fibre material was designed where multiple β-sheet-forming amyloid peptides were connected by flexible glycine-rich peptide sequences of spidroin. A polymeric amyloid peptide sequence FGAILSS was chosen to create such a variant. The architecture of natural silk protein was mimicked by using the

flexible glycine-rich sequence from MaSp1 to connect β-strand-forming amyloid peptides which generated a 16-mer polymeric amyloid protein 16xFGAILSS. 16xFGAILSS achieved 230 ± 34 MPa tensile strength, which is 1.8-fold enhancement from similar molecular weight recombinant silk fibre.

By: Pratyoosh Raj (3rd Year)

The Rise of Millets

Millets, millets, millets everywhere! It is fascinating to see the golden crop of our ancestors gaining a rise again in our society. Millets have truly made big history from our past in the world, especially in India. In this fast-paced world, people are trying hard to find healthy foods that are handy in markets. In the same store where people buy corn flakes and quinoa for hefty prices our traditional millets are available for much cheaper prices and equally being nutritious for our diet. After the advent of high-yielding varieties of rice and wheat during the 1970s, millets got side-lined from our food basket. But the society is getting more and more aware of our traditional wonder crop, and they are starting to get back in form again. Millets are coarse grains and a storehouse of protein, fibre, vitamins, and minerals. They include cholam (sorghum), ragi (finger millet), thinai (foxtail millet), varagu (kodo millet), saamai (little millet), kambu (pearl millet), panivaragu (proso millet) and kuthiraivaali (barnyard millet). The high consumption of refined wheat flour and polished rice increased and due to this, there was a decline of millets in the diet. This trend clubbed with sedentary lifestyles and led to obesity, diabetes, hypertension, and other lifestyle diseases. The most potent health benefits are related to its fibre content. Millets have many nutraceutical and health-promoting properties, for example, the high fibre levels found in millet may help reduce low-density lipoprotein (LDL) or "bad" cholesterol while boosting high-density lipoprotein (HDL) or "good" cholesterol. In addition to improving cholesterol levels, the fibre content of millet supports heart health by reducing blood pressure and, in doing so, reduces the risk for heart attack and stroke. Millets act as a probiotic feeding for microflora in our inner ecosystem. The miracle grain contains various antioxidants including selenium, quercetin, and pantothenic acid which protect the body against free-radical damage and oxidative stress, helping to prevent many chronic diseases. Being rich in iron as well as folic acid, millet helps prevent anaemia by supporting the synthesis of red blood cells and maintaining adequate haemoglobin levels.

By: Barishaa Garg (3rd Year)

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By: Supriya Rai (4th year)

Why And How Do We Cry?

If the question is why we cry, the most common answer would be due to sadness or pain, but it's too simple an answer. Those are not the only reasons and crying is accompanied by a complex process!

Crying is primarily a form of nonverbal communication aimed at eliciting assistance, comfort, and social support from others. Scientifically it is defined as 'A complex secretomotor phenomenon characterized by shedding of tears from the lacrimal apparatus without any irritation of ocular structures '. We generally cry in the settling of sadness and other negative emotions because it helps us to feel better by releasing the stress hormones through tears. Animals do cry as a part of its ocular functioning, but emotional crying is a unique behaviour of humans! The physical act of crying is a combination of neural activity in the brain that is associated with emotions and its connection to the lacrimal system, the structure that produces and drains tears. Emotions originate from different structures of the brain that involves the amygdala, hippocampus, and hypothalamus which are collectively termed as the limbic system. This system regulates the endocrine and autonomic nervous systems that produce a response to emotional stimulation. Cranial nerves originate from the brain and brain stem and innervate the eyeball and surrounding region. Specifically, oculomotor nerve, trigeminal nerve, and facial nerve innervate eyelid, lacrimal gland, and eye. A stimulus produces neural activity in the brain and the lacrimal gland is signalled via cranial nerves and tears are produced.

By: Md. Arif (4th Year)

Chimerism

Ancient Greek mythology includes stories of a fire-breathing creature called a chimera. This fearsome beast was a mix between a lion, goat, and serpent. But chimeras are not just a part of mythology. In real life, chimeras are animals or humans that contain the cells of two or more individuals. Their bodies contain two different sets of DNA. A genetic chimerism or chimera is a single organism composed of cells with distinct genotypes. In animals, this means an individual derived from two or more zygotes which can include possessing blood cells of different blood types and this may lead to intersexuality. Animal chimeras are produced by the merge of multiple fertilized eggs. In plant chimeras, the distinct types of tissue may originate from the same zygote and the difference is often due to mutation during ordinary cell division. In animals, chimerism can occur by organ transplantation, giving one individual tissue that developed from a different genome. In humans, chimerism most commonly occurs by micro chimerism, twin chimerism, tetra gametic chimerism and artificial chimerism. People most often discover they are chimeras by accident. Most chimeras will go through life without realizing they are chimeras. Normally genetic chimerism is not visible on casual inspection, however, it has been detected while proving parentage. There are cases of chimerism that have been discovered during genetic testing for medical reasons other than chimerism such as for organ transplants.

By: Megha Misra (3rd Year)

BIOETHANOL PRODUCTION: STATUS AND PROSPECTS

The world population's appetite for energy and transportation fuels is growing steadily. Approximately two-thirds of known petroleum reserves are in the Middle East and global reserves are declining. Therefore, the need to import oil to keep up with increasing demand is rising rapidly In many countries. There are numerous strategic, economic, and environmental benefits to be gamed by developing "home-grown" fuels such as bioethanol from abundant and renewable biomass resources. Production of fuel ethanol from renewable and waste lignocellulosic materials ('bioethanol") has the potential to reduce burgeoning world dependence on petroleum. Because ethanol has a relatively low toxicity (ethanol is highly soluble in water and biodegradable), the consequences of large fuel spills are far less environmentally threatening than those associated with spills of crude oil or gasoline. Perhaps most importantly. unlike fossil fuels, the use of bioethanol actually mitigates the atmospheric accumulation of carbon dioxide or the so-called greenhouse" effect. Substituting bioethanol for gasoline as a transportation fuel would substantially reduce net emissions of carbon dioxide because, when replanted in a sustainable manner, the amount of carbon dioxide released during production and combustion of fuel ethanol would be equivalent to the amount of carbon dioxide being absorbed by replanted biomass.

By Harshit (2nd Year)

Differences in Perception: An Impediment to Effective Communication

Perception is the processing, interpreting, selecting, and organizing of information. Its effect on the communication process is all about how the same message can be interpreted differently by different

people. People can filter out certain information to make it align with their thoughts, beliefs, and judgments. Past experiences, culture and present feelings are some of the factors that can affect perceptions. People may choose to select different aspects of a message to focus their attention based on their interests or what they may consider as more important. To understand perception a little better, it is pertinent to observe how one is paying attention, remembering details, or interpreting messages. Communication is affected by how we speak as well as our body language and facial gestures. For example, one may apprehend a situation differently if the person speaking is smiling or frowning. For effective communication, one must practice positive body language. Many attributes like physical characteristics, technology, culture, environment, and upbringing make people perceive things differently. For example, In earlier times, teenagers would spend time with their grandparents for fun but today, they would rather watch Netflix series, plan a trip with friends, etc. Many times, our cultural backgrounds also cater to understanding certain things differently. For example, in some countries, people perceive calling parents and relatives by names normal whereas that might be different for a country built on traditional values. The key to overcoming perceptual differences is by asking questions to gain a sense of clarity and to ensure that those communicating are on the same page. To facilitate effective communication, one should be patient and must listen and analyse carefully. Everyone has preferences and life experiences that act as filters on the information. Despite these differences, one must be willing to learn and unlearn to understand one another better.

By: Prashant (2nd Year)

Understanding Mental Health: Need of the hour

Being unhappy isn't the same as being depressed. In common parlance, depression is a term used to describe a bad day or a sad news. "Mental well-being is a state of mind in which an individual realizes his or her own abilities, can cope up with normal stress of life, can work productively and fruitfully, and is able to make contribution to his or her community." – World Health Organization. Mental Health refers to our psychological, social, and emotional well-being. Mental health issues might be genetic or could be due to some traumatic experience. There are various mental health issues including anxiety disorders such as panic attacks, phobias, and mood disorders such as bipolar disorder. It not only affects the way individuals think, but also has an impact on how they react to various situations. There is a need to change the way we think and talk about Mental Health. Stigmatising this sensitive issue can have serious repercussions over the health, welfare, and quality of life of people with mental health problems. It is necessary to accept mental disorder and mental anxiety as an illness so that the required psychological care can be provided. People must be made to feel comfortable for reaching out for assistance. Ignorance, fear, misunderstanding, and prejudice surrounding mental illness only serve to deepen the severity of the illness. Moreover, families, workplace, educational institutions, and peer groups also have an impact on the mental wellbeing of an individual. A recent fearless step was taken in this direction by Deepika Padukone. Her campaign was referred to as #NotAshamed. She took an initiative and talked about her mental illness of having been diagnosed with depression on a big social platform, thus urging and inspiring the victims to feel comfortable in speaking up about their mental health. It instilled a sense of courage among the people because they could resonate with the other person's experience. It made them realise that they are not alone, rather, it is okay to not be okay. So, one should not be embarrassed of one's mental health. Remember that even stars fall sometimes; and when they do, people wish on them!

By: Nandini (2nd Year)

The Power Of Your Subconscious Mind

"All of us have our own inner fears, beliefs and opinions. These inner assumptions rule and govern our lives. A suggestion has no power in and of itself; its power arises from the fact that you accept it mentally." Ever thought about the wonders you can achieve by believing in a power that lies within you? „The Power of Your Subconscious Mind" highlights some of the most notable ideas of Dr. Joseph Murphy. Through this book, he tries to annotate the strength that beliefs hold to change people and their lives. The book explains the working of the subconscious mind and its relationship with spiritual understanding. It also shows how positive thinking can improve the quality of one's daily life. If repeated often, the mind steers one's behaviour towards making positive thoughts into a reality. For example, Dr. Joseph mentions how the miraculous

healings we hear about are due to blind faith and imagination, which act on the subconscious mind, releasing the healing power and making us feel better. The American author elucidates the use of one's subconscious through significant examples from ancient times. The miracle-working strength is further explained with examples of people all around the world on how they attained success, resolved relationships, and overcame health issues. Some readers could find the ideas in this book beyond visualisation as some examples sound too good to be true. However, on the lighter side, read this book to not only understand but also explore the powerhouse we all carry within ourselves. It will help soften one's distressing thoughts which create hindrances in accomplishing goals.

By: Pradum (3rd Year)

Women's Economic Empowerment: A Reality

Women empowerment has been an issue of immense discussion across the globe. The status and role of women and related issues have attracted the attention of human rights activists, political thinkers, and social scientists, both in developing as well-developed countries. Since it is a widely accepted truth that a society built on inequality of men and women involves wastage of human resources which no country can afford. Over the years in our nation, women have made considerable progress, yet they continue to be subject of societal perceptions. It is ironical for a nation, which became the first Asian country to accomplish its Mars mission in the first attempt, is positioned at a dismal 95th rank among 129 nations based on Gender Inequality Index issued by United Nations Development Programme (2019). Policies which promote equality and participation of women in the economic development and social prosperity lead to overall empowerment of women. Equal access to resources is necessary for the economic freedom of women. Empowering women economically will not necessarily improve their condition. The very idea of gender discrimination which is firmly rooted in the societal mindset must be changed.

By: Rithik (3rd Year)

Climate Change: Shifting Business Opportunities

Climate change has come to be one of the most debated topics across the globe owing to its harmful effects on the economy of nations. The UN report of 2018 declared that "biodiversity loss is happening at an accelerated rate than ever before, and the risk of species extinction has worsened by almost 10 per cent over the last 25 years. Global temperatures have risen, ocean acidity has increased by 26% since pre-industrial times and investment in fossil fuels still continues to be higher than investment in climate activities". In such an alarming condition of climate change, it is high time that businesses take strict actions and find the best ways to adapt themselves according to the climatic needs. All businesses today are trying to find solutions to combat climate change as it has affected almost every business sector, both directly and indirectly. The climate extremes like droughts and floods have changed the ways in which business models are perceived and articulated. For instance, in earlier times, the focus of automobile manufacturing industries was majorly to fulfil human desires through innovative car technologies. However, climate change has now pushed manufacturers to make cleaner and greener cars. Tesla, Elon Musk's electric car broke all the previous production and delivery records. Another example is the increase in the adoption of veganism, which is the practice of abstaining from the use of animal products, particularly in diet. Meat industries contribute to increased pollution levels through fossil fuel usage, effluent waste, and animal methane consumption, thereby making them a big threat to the climate. Veganism has therefore become more than just a trend, providing a direct opportunity for emerging operations of the vegan industry.

By: Santosh (3rd Year)

The Future Of Hospitality Sector: Post Covid-19

The COVID-19 pandemic has impacted the global economy to a great extent. Strategies to flatten the COVID-19 curve such as community lockdowns, social distancing, restrictions placed on travel and stay-at-home orders has led to a sharp decline in the hotel occupancies and revenues. It has brought the tourism and hospitality industry to a standstill, causing massive job and revenue losses. However, with the authorities starting to ease the restrictions and allowing dine-in restaurants to re-open and gradually lifting the restrictions on domestic and international travel, the hospitality industry is slowly

beginning to recover from the COVID-19 crisis. Businesses are making substantial changes in their operations in the current business environment to ensure employees' and customers' health and safety to enhance customers' willingness to patronize their business Reopening tourism-related businesses and managing their recovery in a way that is safe and attractive for tourists as well as economically viable will require coordination at a level not seen before. Perception of travel as a risk is one of the biggest threats which should be capitalized as an opportunity for re-designing the business models through innovation and digitalization. Customers will feel comfortable to travel to a destination and stay at a hotel only when that destination can test, trace, and isolate COVID-19 cases. Customers are in fact willing to pay more for increased safety precautions. Some of the health and safety protocols that customers expect are visible sanitization efforts such as hand sanitizers at the entry, staff wearing masks and gloves, implementing social distancing, more rigorous and frequent cleaning of high-touch surfaces in common areas and employee training of the safety norms. Not only this, a large proportion of restaurant and hotel customers believe that the use of various technologies in service delivery is necessary in the COVID- 19 environment to minimize human-to-human contact.

By: Ashutosh (3rd Year)

Earth's Survival: Need Of The Hour

Today, climate change has become the biggest threat to human survival. The rapid decline of flora and fauna species indicates that record-breaking heat is leading us towards an uninhabitable planet. According to U.S Energy Information Administration, humans are the largest contributors to the harmful emissions in the environment due to the use of fossil fuels. The traces of greenhouse gases have continued to rise over time reaching a record high in 2019. The carbon footprint has in fact never stopped growing and today it is eleven times of what it was in 1961. Sea levels have risen by 20 cm since 1880 and are expected to rise another 30-122 cm by the end of the century threatening the population residing near oceans and disappearance of earth's ice cap completely. Climate change is also altering the earth's climate cycles in various regions leading to natural calamities, droughts, and massive losses to economies. The current policies and plans however have been partially successful in curbing climate change. According to Nature Conservancy, a global environmental organization, we need to reduce our carbon footprints to less than two tons per year by the year 2050. India has become the third largest greenhouse gas emitter accounting for 6.9% of global emissions and witnessing 1.7 million deaths in 2019 due to pollution. The country is however committed to reduce its emissions by 35% till the year 2030. India has been actively aligning itself with Climate Action plans on international levels and continues to work for the same. However, it can prove to be a long shot for the economy to counter environmental effects of heavy industrialization in the absence of a durable plan.

By: Vedant (2nd Year)

Beware of Energy Vampires

We all, as human beings emanate some form of energy. We are all a mix of good and bad energies, but there are some people who have such low vibration that they can seek balance only by feeding off other people's energy. These extremely needy people may leave you gasping for breath and deplete all your energy quickly. They generally seek attention by creating drama, playing victim and complaining constantly to get sympathy and they never take responsibility for their actions. Time is finite category and as such can be managed only to a certain extent; but our energy levels are renewable and can be influenced. Positive people leave us feeling good, while energy vampires suck the life out of us. Some people are energizing because they simply give off positive vibes. Some people energize us because they create genuine connections. Some people make you laugh, tell stories, and connect. Energy is about being positive, devoting time to things you like to do while managing others. What really energizes us emotionally is when we socialize with people we care about. We should try to identify what we do best and enjoy most, allocate our time and energy to the area of our lives that we deem most important.

By: Utkarsh 2nd Year

The Man-Eating Tigers of India

India is home to the world's 70% tigers (*Panthera tigris*), and the Indian tiger population has seen rapid growth over the past few years. The Tiger Census, which is taken every 4 years, is a long and laborious task involving hundreds of forest officials, rangers and scientists assessing over 5 lakh square kilometres of land and tracking tigers. The most recent census

tells us that we now have about 3,000 tigers in our country, 1/3rd more than what we had in 2014. Success does not come without a cost, however. The protected areas of India have not grown at the same pace as their tiger population, forcing some big cats to live in human-dominated landscapes. India holds only 25% of the world's tiger habitat but accounts for 70% of its population. Rural communities of our country have shown a uniquely high tolerance for coexisting with these potentially deadly animals, however. With increased tiger attacks, traditional tolerance is beginning to die out with riots and targeted killings of tigers by the affected villagers. Even though only about 40 to 50 people are annually killed by tigers- as opposed to about 350 by elephants each year, tiger attacks in still tremendous fear in the minds of people whereas killings by elephants are viewed as one would view a car accident, something that just "happens." Hence, with an increase in the tiger population, the cases of human-tiger conflict have been on a steady rise as well. The reasons for why a tiger acquires a taste for human flesh are not simple. No tiger is a natural-born man-eater, and as mentioned above, there are usually factors such as injury, old age, high tiger density and proximity to villages that drive the tigers and other big cats such as leopards (*Panthera pardus fusca*) to start attacking livestock and sometimes even people. In one of his most renowned books known as "Man Eaters of Kumaon," Jim Corbett described to us how a tiger becomes a man-eater and the terror inflicted by these man-eating big cats in the Uttaranchal region of India during the Colonial Rule. The most infamous man-eating tigress, known as the "Man-Eater of Champawat," was not born with a taste for human flesh. As the British colonized the Indian subcontinent in the 19th century, prime tiger territory was destroyed to make way for people and agriculture. The beast, when she was still young, had some sort of encounter, probably with an unsuccessful hunter, that severely damaged the cat's mouth and caused the loss of two canine teeth. The loss of habitat forced many tigers to compete for land and prey, and the Champawat tigress, with its physical disadvantages, would not have been able to prevail without turning to humans. Since tigers were shot and brought to near extinction in 1970, people would have never imagined that we would see tigers flourish once again. But now with so many things in our favour, and with the availability of land and money, we should continue taking forward the strides made for tiger conservation. India has the potential to make a tremendous impact and completely change the face of tiger conservation worldwide, it all depends on the choices we make.

By: Suryadeep 2nd Year

LADA (Type 1.5 Diabetes)

Latent Autoimmune Diabetes in Adults (LADA), in adults, is a genetically linked hereditary autoimmune disorder that results in the body mistaking the pancreas as foreign and responding by attacking the beta cells of the pancreas. To understand what causes type 1.5 diabetes, it is important to know the difference between the other main types of diabetes. Type 1 diabetes is an autoimmune condition in children, which results from your body destroying the pancreatic beta cells, and hence it's called juvenile diabetes. The patients need to inject insulin to survive. Type 2 diabetes is characterized in adults by an insulin resistance that is caused by genetic and environmental factors such as diet high in carbohydrates, inactivity, and obesity. Type 2 diabetes can be managed with lifestyle interventions and oral medications. In type 1.5 diabetes, the symptoms begin to develop in adulthood and are caused by the body not producing insulin, rather than learned insulin resistance. Because this form of diabetes seems to span both type 1 type 2 diabetes, it's called type 1.5 diabetes. Many researchers believe that LADA is a subtype of type 1 diabetes, while others don't recognize it as a distinct entity. Other researchers believe that diabetes occurs on a continuum, with LADA falling between type 1 and type 2 diabetes. Since LADA occurs in adults, misdiagnosis as having type 2 diabetes is common. Hence, medications designed to reduce the insulin resistance don't work as people with LADA have little or no resistance to insulin. If doctors recognize LADA early, they may be able to slow down the progression of damage to the beta cells based on the oral medications they prescribe or move to insulin sooner to prevent long- term complications. Controlling carbohydrate intake and exercising may also help protect the beta cells from further damage. Type 2 diabetes treatments like Metformin, can work to manage the symptoms of type 1.5 diabetes until your pancreas stops making insulin. That's the point at which many people discover that they were dealing with LADA all along. Typically, the progression to needing insulin is much faster than type 2 diabetes and the response to oral hypoglycaemic drugs is poor. Scientists who performed the largest ever genetic study on this puzzling type of adult-onset diabetes thus have uncovered its connections to the two major types of diabetes offering intriguing insights!

By: Kush (2nd Year)

FLAVR SAVR

The FLAVR SAVR tomato was the first genetically engineered crop product to be commercialized. The research and marketing efforts that produced the FLAVR SAVR tomato resulted in scientific success, a temporary sales success, and then commercial demise. The FLAVR SAVR story reveals how difficult it can be to bring genetically engineered products to market, how objections with little or no scientific merit can influence the outcome, and how important public opinion is in determining commercial success. Circumstantial evidence available in the 1980s suggested that the tomato fruit enzyme polygalacturonase (PG), because of its ability to dissolve cell-wall pectin, was key to fruit softening. Researchers at Calgene, Inc., in Davis, proposed to suppress PG accumulation in ripening tomatoes by introducing a reverse-orientation copy of the gene, an "antisense" copy designed to prevent or drastically reduce the formation of PG. Their expectation was that ripe fruit would remain firm longer, perhaps even allowing it to be transported to market after vine ripening. Transporting vine-ripened fruit would avoid the practice of picking green fruits and artificially ripening them by ethylene treatment, which gives a ripe tomato colour but not the full array of vine-ripened tomato flavours. On May 21, 1994, the genetically engineered FLAVR SAVR tomato was introduced. Demand for this product was high and remained high, but the product was never profitable because of high production and distribution costs.

By: Kajal Mishra (2nd Year)

BIOTECHNOLOGY IN MEDICINE

Biotechnology is defined as exploitation of living organisms by harnessing cellular and molecular process to develop products and technologies that could help to improve the life of human and its welfare. Biotechnology is widely used in various fields such as medicine, agriculture, food processing etc. When we talked about applications of biotechnology in medicine, we come across the word Red Biotechnology which concerned about the medical sciences, development of innovative drugs, vaccines, gene therapy, stem cell therapy and their treatments. Nowadays, biological medicines have successfully saved countless lives of patients with serious diseases such as Cancer, Rheumatoid Arthritis (Autoimmune disorder), blood related illness and Multiple Sclerosis (Neurological disorder). Biotechnology has covered every field including Agricultural and medical sectors with the aim of improving the different targeted Genes and customized medicines. Advancement in innovative methodologies of Biotechnology in medicine include genomics, pharmaceuticals, DNA sequencing, cell culture, and recombinant DNA technology have effectively improved the understanding of health science, through gene sequencing, stem cells for regenerative medicine, tissue engineering and antibiotics. With the steady improvements medical biotechnology can surely become a well-received foundation in Health science. The medical biotechnology has application in Biopharmaceuticals, Pharmacogenomics, Gene testing and recombinant insulin etc.

By: - Kiran Shivach (3rd year)

POETRY

SIGNET OF ETERNITY

The day was when I did not keep myself in readiness for thee.

And entering my heart unbidden even as one of the common crowds,

Unknown to me, my king, thou didst press the signet of eternity upon

Many of fleeing moment of life.

And today when by chance I light upon human occurrences and see thy steps,

I find they have lain scattered in the dust mixed with memories of deed

Of the coffins of truth and my trivial days

Forgotten.

Thou things couldn't condemn my childish plays among their dust,

N steps that I heard in my heart are the same

Those are echoing from heart to heart.

This is my delight,

Thus, to wait and watch at the wayside

Where the shadow chases light

And the rain comes in the wake of the summer

Massagers, with tidy waves from unknown skies,

Great me and bless me and then pass by me along the road.

And the breadth of positivity is sweet.

From dawn till dusk, I sit here, Near the gates to heaven, my heart.

It is glad within,

And I know that of a sudden

The happy face will arrive, the cheering one when I shall see

Bright and shiny leaving me amorous

In the meantime, I smile, and I smile all alone.

In the meantime, the air is filling with the perfume Of "PROMETTRE"

By: Sweety Singh (3rd year)

Crawling

Crawling life

Crawling my past to present

From day to night

I just defined to be,

Girl of own will

Numerous stone and gemstone touch my life

But I was diamond fixed with one element,

That is my willpower

Narrating millions of views won't strict a person

Because person strikes its own Crawling

Of past and present

So being a girl thought or boy thought won't matter

Matter is your Crawling life button

Which woul be,

Delight past

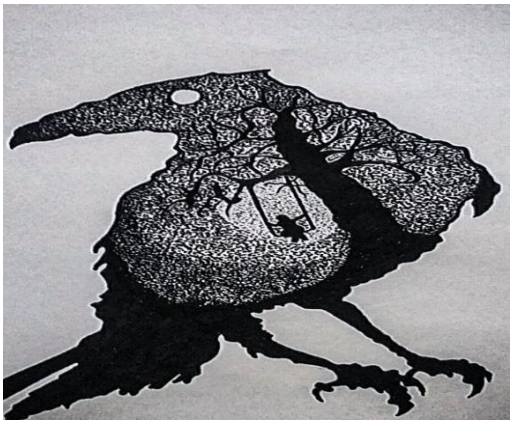
Explore your present

Spark your future

By: Priyanka Rajput (2nd Year)

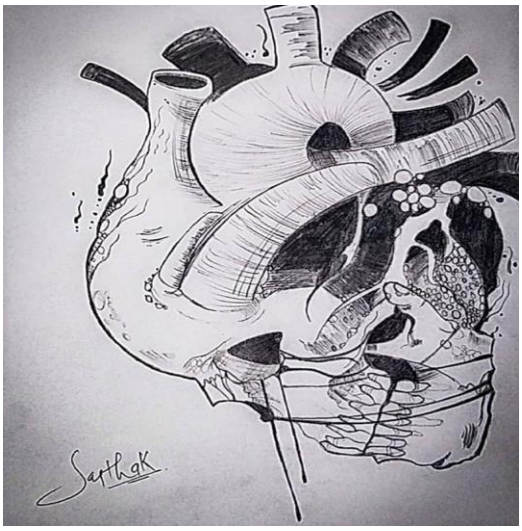
BEYOND CLASSROOM

The students of biotechnology department showcase their talent beyond classroom programmes in drawing/painting.



Shristi 2nd Year

Anjali 2nd Year



Gautam 2nd Year

Tahseen 2nd Year

ACHIEVEMENTS

- Shivansh Verma of department of biotechnology has scored 1994 Rank in Gate Biotechnology 2021.

- Ambuj Upadhyay of department of biotechnology has scored 501 Rank in Gate biotechnology 2021.

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