



Issue:  
7

November  
2022

# Acuity Newsletter

## Department of Basic Sciences & Humanities



### Message from Executive Director

*It gives me immense pleasure to pen a few words for our in-house Basic Sciences and Humanities departmental newsletter "ACUITY" exclusively meant for enriching the knowledge of the budding technologists in various fields and I believe such departmental newsletter will be beneficial for all.*

*I congratulate the efforts of the members of The Editorial Board that they have brought out this issue of the newsletter in such a beautiful form. It is because of their selfless and untiring efforts that we see the newsletter enriched with variety of articles.*

*Once again, I extend my hearty congratulations to the entire team and wish the newsletter a great success.*

### Message from the Head of the Department

**'A journey of thousand miles begins with a single step': With this conviction we decide to initiate this venture to progress in our pursuit of knowledge and excellence in academia. The task, we know, is not simple and requires united endeavour for accomplishment. I hope that your enthusiastic cooperation will lead us to light.**

তমসো মা জ্যোতির্গময়ঃ

Chief Editor:

*Dr. Jhumur Ghosh*

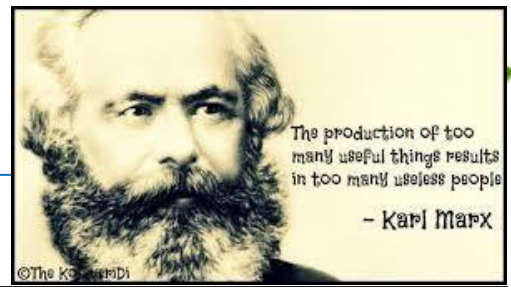
Editorial Board

*Mr. Kaushik Sinha Roy*

*Dr. Rupa Bhattacharya*

*Mr. Sanjiban  
Mukhopadhyay*

Arunav Chakrabarty



## “Importance of Management Education For Individuals” By Rudra Sekhar Mondal

Whatever you do in your professional life, the chances are that it will involve some ‘business’. Scientists, engineers, even artists, will inevitably have to understand at least the basics of business, and probably a lot more. Today’s management gurus, the people who are forecasting the way we will do business at the beginning of the 21st century, are saying that the companies of the future will consist of groups of specialists who work together on a specific project and then disband. For the next project the composition of the group will almost certainly be different. One of the consequences of this is that many more people will be what we call today ‘independent’, and will have to understand more about the opportunities and constraints of business. In other words, the combination of specialist qualification and business knowledge will become vital. But it is not just ‘knowledge’ of business. Before pursuing an MBA, you need to ask yourself a basic question, ‘what should a business education give me?’ Most subjects that one studies are composed of theory and practice.

Management education offers all necessary tools to equip one with the necessary techniques of successfully handling various business and management related issues. Basic tools which will enable you to make contributions to global economy.

Besides providing the basic management capabilities it also provides :

- The ability to use the contingency approach to solving business problems.
- Combining the best parts of several solutions into a unique and better solution.
- Having a global perspective
- Working with and learning from others

Management education introduces students to a broader perspective about the role of individuals in growth of business and society, which is quite evident.

Although the information interfaces such as paper media usually focus on and elaborate the deeds of a few examples of an irresponsible few management leaders, but every one fully understands at large the role of business in strengthening communities and the world. Awareness of that role can be seen every day around us and is quite evident everywhere.

At the individual level, one study found three of four management education alumni made marvelous and philanthropic contributions during the recent two years. Thus Management education provides students and working professionals with an edge that enables them to strengthen the Connection between business and society.

A recent example that demonstrates the effective impacts of proper management education on individuals in strengthening the connection between society and organization is comes out in recent research. According to this research, in a recent example, CEOs and others, working through their corporations, made a huge contribution of more than 100 million dollars to the tsunami relief effort. This is an example of how the proper management education has not only made better business leaders but also has produced a sense of dedication and affection with the other people in the society. This does not need any further explanation and is self-evident.

A real manager is the one that is not only able to manage complexities and unpredictable situations of the corporate world, but also is able to handle the familiar problems and daily life stuff that is common to almost every person's life and is needed to be managed properly in order to live a happy and managed life that bring satisfaction. Management education does exactly that for individuals who wants to live a satisfying and happy lifestyle.

# Chemistry & Environment

The conservation of natural resources is the fundamental problem. Unless we solve that that problem it will avail us little to solve all others.



Theodore Roosevelt

More science quotes at Today in Science History [todayinsci.com](http://todayinsci.com)

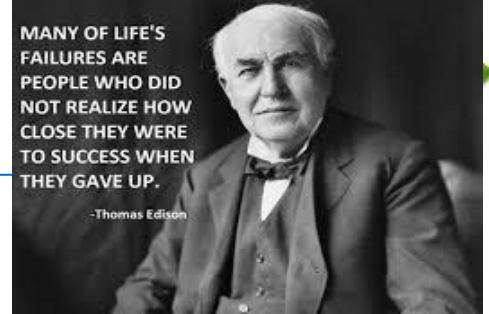
## Environmental Movements and its Ideological Trends in India by Arunav Chakrabarty

Environmental movement is a type of “social movement that involves an array of individuals, groups and coalitions that perceive a common interest in environmental protection and act to bring about changes in environmental policies and practices” (Tong, Yanki 2005: 167-168). Major reasons of the emergence of environmental movements in India have been discussed by Sharma, Aviram (2007) which include reasons such as i) control over natural resources, ii) false developmental policies of the government, iii) socioeconomic reasons, iv) environmental degradation/ destruction and, v) spread of environmental awareness and media. (Sharma, Aviram, 2007). The major environmental movements are **Bishnoi Movement**: This movement was led by Amrita Devi in which around 363 people sacrificed their lives for the protection of their forests. **The Chipko Movement**: The Chipko is one of the world known environmental movements in India. **Narmada Bachao Andolan**: The most popular movement in the environmental history of India is the movement against the Narmada River Valley Project (Reddy, Ratna V, 1998: 688). **Appiko Movement**: Appiko Movement is one of the forest-based environmental movements in India. The movement took place in the Uttara Kanada district of Karnataka in the Western Ghats. **Silent Valley Movement**: Silent Valley in Kerala has a rich 89 sq. km biological treasure in the vast expanse of tropical virgin forests on the green rolling hills. **Tehri Dam Conflict**: One of the most protracted environmental movements in the recent years is the movement against the Tehri Dam. The 260.5 meter high Tehri Dam on the Bhagirathi in the Garhwal-Himalayas (Santara, S. C. 2000: 829).

### Ideological Trends in Indian Environmentalism:

**1] Crusading Gandhians**: Crusading Gandhian, “relies heavily on a moral/religious idiom in its rejection of the modern way of life. They argue that the essence of ‘eastern’ cultures is their indifference, even hostility to economic gain. They have worked hard in carrying their message of moral regeneration across the country and indeed across the globe. They have sharply attacked the stranglehold of modernist philosophies particularly those upholding rationalism and economic growth on the Indian intelligentsia. They propagate an alternate, non-modern philosophy whose roots lie in Indian tradition” (Ibid: 465-466). **2] Ecological Marxist**: Ecological Marxists, “see the problem in political and economic terms, arguing that it is the unequal access to resources, rather than the question of values, which better explains the patterns and processes of environmental degradation in India. In this sharply stratified society, the rich destroy nature in the pursuit of profit, while the poor do so simply to survive” (Ibid: 466). **3] Appropriate Technology**: “This strand of the environmental movement strives for a working synthesis of agriculture and industry, big and small units, and western and eastern technological traditions.....Their emphasis is not so much on challenging the ‘system’ as in demonstrating in practice a set of socio-technical alternatives to the centralizing and environmentally degrading technologies presently in operation” (Ibid: 466-467). **4] Wilderness Enthusiasts**: Wilderness Enthusiasts, “have provided massive documentation of the decline of natural forests and their plant and animal species, urging the government to take remedial action.....Wildlife preservationists have used the scientific rhetoric of biological diversity and the moral arguments in favour of 16 ‘species equality’ in pursuit of a more extensive system of parks and sanctuaries and a total ban on human activity in protected areas” (Ibid: 468). **5] Scientific Conservation**: Scientific conservationists are concerned with efficiency and management. According to Ramchandra Guha, “Crusading Gandhians, Appropriate Technologists and Ecological Marxists represent the three most forceful strands in the environment-development debate in India” (Guha, Ramchandra 1988: 2580). In the current situation, individual environmental issues can hardly be considered the central, let alone the sole problem for environmentalists, given that corporate domination makes the raising of public awareness of these issues almost impossible. The real problem is the massive corporate obstacle to the public coming to the aid of the environment.

# Physics



## HID is a better option than Halogen Bulb

by Palash Sarkar

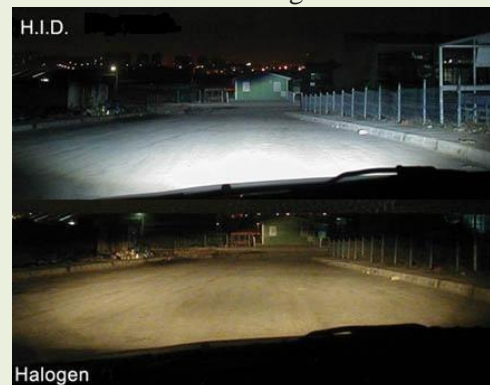
In automotive lighting, “halogen bulb” has been the most widely used and predominantly talked bulb since the last 20 yrs in India. Halogen lighting involves a conventional direct-current direct-circuit setup. The bulb itself houses a filament commonly made of tungsten metal, which is basically a very delicate loose coil of wire.

When electrical current is supplied to the positive lead wire in the halogen bulb, it crosses a path of tungsten wire, which has very high electrical resistance. It is this high resistance that produces heat and ultimately emits light. Low beams of halogen bulb normally operate on 55 watts of power and high beams at 55 watts to 85 watts. These kind bulbs are filled with inert gases like argon, krypton. Technology increases the effective luminous efficacy of a tungsten filament. When operating at a higher filament temperature which results in more lumens output per watt input, a tungsten-halogen lamp has a much longer brightness and lifetime than similar filaments operating without the halogen regeneration cycle.

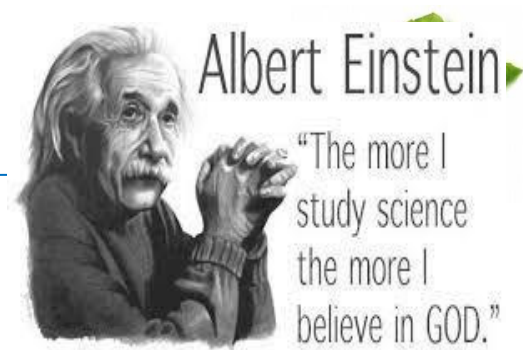


High-intensity discharge lamps (HID) produce light with an electric arc rather than a glowing filament. These lamps were formally known as gas-discharge burners and have a higher efficacy than the existing headlights. Xenon headlamp can produce a more robust beam pattern. Automotive HID may be called “xenon headlamps”.

In this kind of bulb instead of argon and krypton, XENON is filled. The sole purpose of these heavy gases is to create a level of pressure within the bulb that deters tungsten evaporation. Once a tungsten atom leaves the surface of the filament, it is immediately blocked by giant xenon particles that are crowding it and pushing it back towards the surface of the filament. Xenon is most commonly used because it is the heaviest of the inert gases and is used in HID lighting.



**Benefits of HID over Halogen Lighting :** a) Up to three times less wattage is used (HID = 35w, halogen = 55-100w), b) Up to three times less wattage is used (HID = 35w, halogen = 55-100w), c) Up to four times more bright light produced (HID = 2400-3200lu, halogen = 800-1700lu), d) Up to ten times more intense light produced (HID = 202,500cd, halogen = 21,000cd), e) Up to six times longer lifespan (HID = 2500hr, halogen = 400hr), f) HID light contains less infrared and ultraviolet light, which fatigues the driver and surrounding motorists, g) HID light illuminates the road with better contrast and more lifelike tones of color, h) Halogen filaments naturally produce a color of 2300K to 4000K (2300K is yellowish, 4000K is whitish) Anything bluer requires the use of light-dimming color filters, i) HID produces a natural color of 4100K to 6000K (4100K is daylight white, and 6000K is slightly bluish white) Anything bluer requires the use of light-dimming color filters, j) HID lighting produces a wider and deeper beam pattern with razor sharp cut off lines, k) HID has low lumen maintenance, meaning bulbs do not dim down as much towards the end of their lives, l) HID has high flux properties, meaning light is very evenly distributed when installed properly

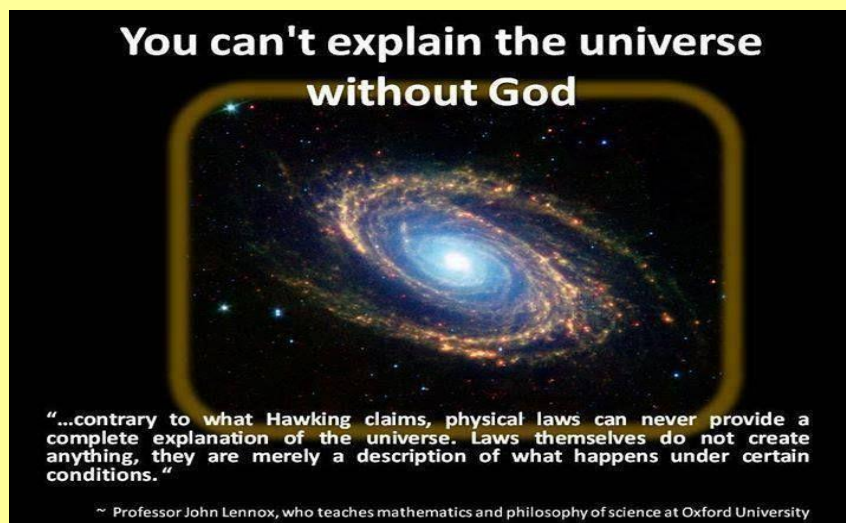


# Mathematics

## Who has created the Universe ?OMG !!

by Prof. Tanmay Joarder

What does the petal arrangement of a rose, the spiral shape of a mollusk and the shape of the galaxy all have in common? The Golden Ratio is found everywhere! Golden Number Phi is an irrational Mathematical constant that is approximately equal to 1.618. But where does this number come from? The first definition of the Golden Ratio was made by Euclid of Alexandria in about 300 BC. It is presumed that the Egyptians used the Golden Ratio in the construction of the pyramids. The Greeks also based the design of the Parthenon on this proportion. DaVinci called it "SectioAurea" in the 1500's. Leonardo Fibonacci, born in 1175, discovered the unusual properties of the numerical series that bears his name: 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144,... How are the terms in Fibonacci's Sequence determined? How does the Fibonacci Series relate to the Golden Ratio? How does the Fibonacci Series relate to the Golden Spiral? Pine cones usually have 5 or 8 spirals turning against one another, but depending on the cone, it may also have 8 or 13. The Golden Ratio is everywhere. Is it the fingerprint of God? Golden Section Divine Proportion does. Being a scientist mean that you cannot believe in God? Richard Dawkins, among other atheists, thinks he has the ultimate proof that God doesn't exist. If God created a complex universe, wouldn't it take an even more complex entity to have created God? However, such logic assumes that time has always existed, rather than being merely a construct of this universe.



Rich Deem, the scientist who has lived by his faith in the power of reason, the story ends like a bad dream. He has scaled the mountains of ignorance; he is about to conquer the highest peak; as he pulls himself over the final rock, he is greeted by a band of theologians who have been sitting there for centuries. Robert Jastrow : "I want to know how God created this world, I am not interested in this or that phenomenon, in the spectrum of this or that element. I want to know His thoughts, the rest are details." Einstein's famous epithet on the "uncertainty principle" was "God does not play dice" - and to him this was a real statement about a God in whom he believed. A famous saying of his was "Science without religion is lame, religion without science is blind." In developing the theory of relativity, Einstein realized that the equations led to the conclusion that the universe had a beginning. He didn't like the idea of a beginning, because he thought one would have to conclude that the universe was created by God. So, he added a cosmological constant to the equation to attempt to get rid of the beginning. He said this was one of the worst mistakes of his life. Of course, the results of Edwin Hubble confirmed that the universe was expanding and had a beginning at some point in the past. "I'm not an atheist and I don't think I can call myself a pantheist. We are in the position of a little child entering a huge library filled with books in many languages. The child knows someone must have written those books. It does not know how. It does not understand the languages in which they are written. The child dimly suspects a mysterious order in the arrangements of the books, but doesn't know what it is. That, it seems to me, is the attitude of even the most intelligent human being toward God."



# Alumni Contribution



## Three advices to keep in mind by Mr. Ratnadeep Bhattacharya

Senior Engineer, \*NIX, DR/BCP, Virtualization, IMTAC LLC, Muscat

(Our Alumni Electrical Department, 2006)

Frankly, as a student, I floated through college without the slightest ambition. If you are like this, you are in deep trouble contrary to the praises lavishly bestowed upon you by well-meaning but misdirected compatriots. Honestly, in this time of ubiquitous access to everything, this is inexcusable. While times have changed, the necessity of building a career has not. And I intend to pass on pieces of my experience that might assist in your endeavour.

The first thing is to impress the interviewer by showing that you know what you are talking about. When asked a question, don't quote a textbook by rote; put it across as YOU see it. Most people would ask questions based on what you said earlier, so make sure what you said was interesting. Otherwise, you will make it easy for the interviewer to go to a different topic; one you may not be comfortable with. Another thing to do is to wait for a question you know about and then spend as much time with that question as possible. Here are a few things that interviewers, worth their salt, look for – motivation, ability to learn and integrity – in that order. More importantly, don't cop an attitude of any sort.

Secondly, technology is changing by the hour and you would be obsolete in a heartbeat if you don't keep up. One trick is to find areas you are interested in and seek to improve the existing. You won't be able to do that from Day 1 but you should at least be thinking along those lines. You are a trained engineer so behave like one.

Finally, there is only one kind of people who grow – in any field. These people can endlessly persevere without losing heart and they are always prepared. So, beyond your job responsibilities find an area that you are really interested in. In today's world of free online education, 50 cents an hour cloud servers and \$80 robotic kits, it is very easy to tinker away at a hobby. But find something you are really interested in so that you can keep at it for years. If you keep waiting for an opportunity or a sponsorship to upgrade your skills, you would be at best relegated and life would happen independently of you. But if you are prepared, then the opportunity you need will come; it may take time though. The golden rule here is network, network and network. Nobody knows about your skills unless you build them and market them to the right person; which brings me to the point that try not to ever burn your bridges.

## Story of Mr. Arnab Dasgupta: Making Denmark the Silicon Valley of Europe

(Our Alumni Mechanical Department, 2008)



Arnab graduated in mechanical engineering from Future Institute of Engineering and Management in 2008. Thereafter, he received an international scholarship to pursue his Masters in Mechanical Engineering from Swansea University in the UK. While studying in the university, Arnab worked as a simulation engineer for Bloodhound SSC, world's fastest car (1000 mph). He also developed an Artificial Pancreas for Type I Diabetic Patients. He then met his mentor Sir Terry Matthews a British Canadian Billionaire, and together he launched his venture in the UK, raising 5.5 million pounds. Thereafter, Arnab launched 10 companies in countries like Canada, Denmark, Norway, Sweden, Poland, Germany, UK and Australia. Arnab is a startup evangelist, investor and has been instrumental in creating tech cities in UK and Denmark. Arnab is also making Denmark the Silicon Valley of Europe. Arnab is well known in startup ecosystems in UK, Sweden, Norway, Denmark, Finland, Canada and Australia.



# Intimation

## Workshop

The department organized a workshop on **The Application of Chemistry in the Field of Engineering** on 11.10.2022 to 17.10.2022 at Interaction Center and Engineering Chemistry Laboratory for the First Year students of ECE,EE,EIE. The faculties who conducted this are:

Arunav Chakrabarty, Dr. Srikanta Samnta and Dr. Rupa Bhattacharya. The workshop was very helpful and received good feedback from the students.



## Symposium

The symposium was held in BSH department on 30/10/22 to 3/11/22 on **Mechanics** for the 1<sup>st</sup> Year students of CSE,IT,ME . The faculties who conducted the symposium are Dr. Arnab Banerjee and Bina Basak. The symposium was very helpful and received good feedback from the students.



## Workshop

The department organized a workshop on **The Power Series Solution** on 11.9.2022 to 13.9.2022 at Interaction Center for the students of EIE. Mr.Arindam Banerjee conducted the Workshop. It was very helpful and received good feedback from the students.

## Mock Interview Session

A mock interview session was held on 31/8/2022 for ECE fourth year students.The session was conducted by Nivedita Gupta

## Interactive Session

An interactive session with students of all departments was held to understand and absorb clearly the various aspects of English Language and technical Communication on 6<sup>th</sup> August 2022 at Interaction Center .The session was headed by Dr. Jhumur Ghosh and conducted by other faculties of English & Communication

## Special Care for Lateral Entry Students

Special Classes were arranged for the Lateral entry students.