GSFC UNIVERSITY
EDUCATION RE-ENVISIONED

EVENTIA

A BIMONTHLY NEWSLETTER

Volume: 2 | Issue: III | May - June, 2021

Message from President's Desk

It is vital to be educated not for one's own sake but for the sake of others who will follow him.. View More

Message from Provost's Desk

GSFCU aspires to be the best compact boutique institution with a futuristic strategy.. View More

ARTICLE CONTENTS

Visit us at: https://www.gsfcuni.edu.in/newsletter

Follow us on:

Table of Contents

GSFC University Newsletter Editorial Board

Ms. Sneha Bajaj
Chief Editor

Dr. Saurabh Shah
Technological Editor

Dr. Saroj Shekhavat
Editor,
GUIITAR COUNCIL

Dr. Chetna Parmar
Editor,
School of Management

Ms. Shivani Joshi
Editor,
Student Managed
Club Activities

Ms. Priyanka Pandya
Editor,
School of Technology

Mr. Dhairya Patel
Editor,
School of Science

Mr. Kirankumar Parmar
Editor,
GUIITAR COUNCIL

Message from President's Desk

Shri P.K. Taneja, IAS (Retd.)
President - GSFCU
Former ACS Industries, Home and Forest & Environment, GoG

"Education is simply the soul of a society as it passes from one generation to another."

- Gilbert Chesterton

It is vital to be educated not for one's own sake but for the sake of others who will follow him. Our collective wisdom has accumulated over hundreds of years as educated people pass on their expertise. Education should motivate people to pass on their knowledge to future generations. The GSFC fraternity aspires to share this motivation with our students to encourage them to pursue education holistically. Curricular, co-curricular, extracurricular, soft skills and general personality development are key priorities at GSFC University. There are several initiatives at the University that drive the core mission of developing students holistically, such as GUITTAR, PINUPS, SM Club, Vibrant Pots, Credit Bank etc.

I congratulate GUIITAR Council on getting recognition as a nodal institute by the Gujrat government's industries commissionerate. It has been established to create an environment for encouraging startups and inculcating entrepreneurship spirit amongst the students. I advise and encourage the university students to use the opportunities and potential of the council to achieve their goals.

At the beginning of the new academic year, I extend my best wishes to all the existing students to get the best out of themselves to attain their objectives.

Message from Provost's Desk

Dr. Nikhil Zaveri
Provost (Vice Chancellor)
GSFC University

'The foundation of every state is the education of its youth.'

- Annonymus

GSFCU aspires to be the best compact boutique institution with a futuristic strategy, fosters a student-centered culture, and focuses on producing industry-ready and employable students via holistic development. At the start of the academic year, the GSFC University is ready to welcome new students. Along with the existing courses, a few new ones have been added, like BBA – Analytical Skill in sciences also. In addition, new and innovative laboratories with cutting-edge technology have been established.

GSFC University emphasizes a holistic approach to education in order to empower and encourage youth. Therefore, the university prioritizes not only the curriculum components of education but also co-curricular and extracurricular activities. I am happy to mention that GSFC University has launched a unique initiative named PINUPS (President's Initiative for Nurturing Unlimited Potential of Students). Shri P K Taneja, the President of the University, is concerned about the students' future and the university's role in their holistic development. PINUPS is a unique program in which 5% of the university's most exemplary students will be led, encouraged, and mentored through specific activities to develop a distinct identity and make an impact in the real world.

I convey my best wishes to the existing students for the new academic semester and wish them all the success.

From Editor's Desk

Ms. Sneha Bajaj
Chief Editor - 'Eventia'
GSFC University

"What is necessary to change a person is to change his awareness for himself."

- Abraham Maslow

The current epidemic has significantly altered the planet, making us more adaptable and tolerant of reality. First, however, it is necessary to determine whether or not it has altered a person's consciousness. We shall not be able to move forward with all our zeal until we modify our consciousness. GSFC University has recognized the shift and has begun working toward its objective of comprehensive student development.

With its diverse range of articles ranging from startup talk to the special skills required for success, from environmental message to the importance of finance, from spiritual connection to the scientific time-lapse, as well as the students' achievements and accolades, I am confident that this issue of Eventia will pique your interest in reading. I am immensely pleased to introduce the Guestinspiration post from Mr. G M Patel on Hydrogen. I hope the diversity will conquer the hearts of the readers.

Happy reading!

With Best Regards,

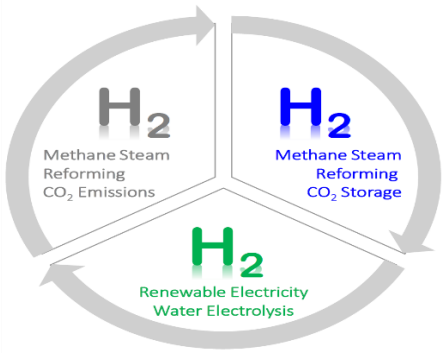
Ms. Sneha Bajaj

Chief Editor – 'Eventia' & Assistant Professor GSFC University

Guestinspiration Post
Future of Hydrogen

Mr. Ghanshyam M Patel
Technical Director,
CIFC I Pvt. Ltd. New Delhi

- **What is hydrogen?**
  Hydrogen is a clean alternative to methane, also known as natural gas. It's the most abundant chemical element, estimated to contribute 75% of the mass of the universe.



- **How expensive is green hydrogen?**
  At the cost of about $6/kilogram, green hydrogen is the most expensive form of hydrogen to produce. Today, green hydrogen is two to three times more expensive than blue hydrogen, according to a December 2020 report by the International Renewable Energy Agency.

- **Why is green hydrogen so expensive?**
  Green hydrogen is still expensive to produce today. The business case for green hydrogen requires very large amounts of cheap renewable electricity because a fair amount is lost in electrolysis. Electrolyzer efficiencies range from around 60 percent to 80 percent, according to Shell.

- **Why is green hydrogen more expensive than blue hydrogen?**
  Today, green hydrogen is 2-3 times more expensive than blue hydrogen, produced from fossil fuels combined with carbon capture and storage (CCS). The production cost for green hydrogen is determined by the renewable electricity price, the electrolyzer's investment cost, and its operating hours.

- **Does Green Hydrogen make sense?**
  Scaling up green hydrogen will be essential to helping global economies to achieve net-zero emissions by 2050 and limit global temperature rises to 1.5C. Green hydrogen could supply up to 25% of the world's energy needs by 2050 and become a US$10 trillion addressable market by 2050, according to Goldman Sachs

- **Is there a market for green hydrogen?**

The global green hydrogen market size was estimated at USD 786.9 million in 2019 and is expected to reach USD 822.2 million in 2020. ... The global green hydrogen market is expected to witness a compound annual growth rate of 14.24% from 2020 to 2027 to reach USD 2,282.4 million by 2027.

- **How is green hydrogen generated?**
  Green hydrogen is produced using a technology known as electrolysis. The process involves passing an electric current through water using a device known as an electrolyzer. This separates the hydrogen from the oxygen.

- **What is the difference between GREY blue and green hydrogen?**
  Hydrogen, in itself, is a clean fuel....
  Blue hydrogen uses carbon capture and storage for the greenhouse gases produced in the creation of grey hydrogen.
  Green hydrogen production, the ultimate clean hydrogen resource, uses renewable energy to create hydrogen fuel.

- **What is turquoise hydrogen?**
  This is a new entry in the hydrogen color charts and production has yet to be proven at scale. Turquoise hydrogen is made using a process called methane pyrolysis to produce hydrogen and solid carbon. In the future, turquoise hydrogen may be valued as low-emission hydrogen, dependent on the thermal process being powered with renewable energy and the carbon being permanently stored or used.

- **What is yellow hydrogen?**
  Yellow hydrogen is a relatively new phrase for hydrogen made through electrolysis using solar power.

- **What is white hydrogen?**
  White hydrogen is naturally occurring geological hydrogen found in underground deposits and created through tracking. Unfortunately, there are no strategies to exploit this hydrogen at present.

- **Why are hydrogen engines a bad idea?**
  You won't even go 100 miles on current tech hydrogen tanks that are still safe to carry around in a car. Fuel cells wear out crazy fast and are hard to regenerate. Hydrogen as a fuel is incredibly hard to make and distribute with acceptably low losses.

- **Does green hydrogen use a lot of water?**
  Indeed, producing grey and blue hydrogen requires large amounts of water for steam in the reformation process. Producing green hydrogen by electrolysis can require as much as nine kilograms of high-purity water per kilogram of hydrogen.

- **Does hydrogen fuel have a future?**
  Hydrogen is the fuel of the future. Hydrogen is an energy carrier that can be used in internal combustion engines or fuel cells, producing virtually no greenhouse gas emissions when combusted with oxygen. The only significant emission is water vapor.

- **Is hydrogen eco-friendly?**

Hydrogen fuel is considered environmentally-friendly since it does not produce the same waste as fossil fuels during production. About 95 percent of the hydrogen used today is produced by a process called steam reforming, separating hydrogen atoms from carbon atoms in methane

- **How dangerous is hydrogen?**

  When liquid hydrogen is stored in tanks, it's relatively safe, but there are associated hazards if it escapes. Topping the list of concerns is hydrogen burns. In the presence of an oxidizer, oxygen is a good one hydrogen can catch fire, sometimes explosively, and it burns more efficiently than gasoline does

- **Can I produce hydrogen at home?**
  Yes, it's possible to generate hydrogen in a science fair kind of way by electrolyzing water. A liter of water will get you about 111 grams of hydrogen if you can capture it all. A kilogram of hydrogen is the fuel cell car equivalent to a gallon of gas.

- **How large is the green hydrogen market?**
  The Green Hydrogen Market was estimated at USD 1.01 billion in 2020 and is projected to grow at a CAGR of 15.7% during the forecast period from 2020 to 2028. In terms of volume, the global green hydrogen market is anticipated to grow at a CAGR of 13.4% by 2028.

- **What is green ammonia?**
  Green ammonia is made with hydrogen that comes from water electrolysis powered by alternative energy

- **How much can I charge for hydrogen?**
  A range of hydrogen production prices from $3/kg to $10/kg are explored. This range represents the range of potential prices at which hydrogen can be sold from a production facility. The low value represents the U.S. Department of Energy target of $2–$4 per gallon gasoline equivalent without tax

- **Does hydrogen cause global warming?**
  Emissions of hydrogen lead to increased burdens of methane and ozone and hence to an increase in global warming. Therefore, hydrogen can be considered as an indirect greenhouse gas with the potential to increase global warming.

- **What are the three Colours of hydrogen?**
  This video looks at the three different types of hydrogen – grey, blue and green and examines their environmental credentials. Grey hydrogen is made using fossil fuels like oil and coal, which emit CO_2 into the air as they combust.

- **What are the colors of hydrogen?**
  Yes, hydrogen is an invisible gas.
  Green hydrogen, blue hydrogen, brown hydrogen and even yellow hydrogen, turquoise hydrogen and pink hydrogen
  Depending on the type of products used, different colors are assigned to the hydrogen.

- **What is the natural color of hydrogen?**
  But not all hydrogen is made equal. Although hydrogen is actually a colorless gas, it is commonly referred to by color to denote how clean it is: black, grey and brown being least

clean, cleaner blue and true zero-emission green hydrogen. Roughly 95% of hydrogen is fossil-based.

- **What are green hydrogen and blue hydrogen?**
  Blue hydrogen is created from fossil sources, where carbon emissions are captured and stored. Green hydrogen is made from non-fossil sources and favored by policymakers who are wary of keeping the fossil economy going, even with CCS.

- **What is GREY hydrogen?**
  As we know that hydrogen is a clean fuel. Brown hydrogen is formed through coal gasification. But, on the other hand, the production of grey hydrogen from natural gas throws off carbon waste. That is, its production results in the production of large volumes of carbon dioxide.

- **Is Nuclear Hydrogen Green?**
  The US Department of Energy, through the Idaho National Laboratory (INL), will pilot the use of nuclear energy to produce green hydrogen. Bloom Energy will provide its solid oxide, a high-temperature electrolyzer, to power the electrolysis process using atomic energy.

- **Is hydrogen dangerous to humans?**
  At very high concentrations in air, hydrogen is a simple asphyxiant gas because of its ability to displace oxygen and cause hypoxia (ACGIH 1991). However, hydrogen has no other known toxic activity.

- **Is green or blue hydrogen better?**
  When the electricity used in the process comes from renewable sources, such as wind or solar, the result is zero-carbon hydrogen. Today, green hydrogen is two to three times more expensive than blue hydrogen, according to a December 2020 report by the International Renewable Energy Agency.

- **Are hydrogen cars better than electric?**
  However, as hydrogen cars densely pack their energy storage, they can achieve longer distances. While most fully electric vehicles can travel between 100-200 miles on a single charge, hydrogen ones can get to 300 miles, according to Automotive Technologies.

- **Is hydrogen fuel the future?**

  Hydrogen is the fuel of the future. Hydrogen is an energy carrier that can be used in internal combustion engines or fuel cells, producing virtually no greenhouse gas emissions when combusted with oxygen. The only significant emission is water vapor.

- **Is hydrogen fuel liquid or gas?**
  Chilled to near absolute zero, hydrogen gas turns into a liquid containing one-quarter of the energy in an equivalent volume of gasoline. The technology is well-proven: For decades, NASA has used liquid hydrogen to power vehicles such as the space shuttle.

GUIITAR Council
Recognized as a Nodal Institute by the Government of Gujarat

Dr. Saroj Shekhawat
CEO, GUIITAR COUNCIL

GUIITAR Council, a section 8 company, promoted by GSFC University, has been recognized as NODAL INSTITUTE by Industries Commissionerate, Govt. of Gujarat under the scheme for Assistance for Startups/Innovation, Gujarat Industrial Policy – 2020.

GUIITAR Council has been set up for developing an Ecosystem for promoting startups and inculcate Entrepreneurship spirit amongst the young minds and innovators. GUIITAR Council is committed to nurture and develop startups through shared resources, Infrastructure, cutting-edge laboratories, tailored mentorship, extended networking and other common services such as Co-working space, equipment, business support, Intellectual property Protection.

GUIITAR Council's major focus areas are Agriculture, AI & Robotics, Biotechnology, Clean-Tech, Cyber Security, Energy, Environment, Healthcare, ICT, IoT, Manufacturing, Services, Water and Waste Management.

Eligibility:

- Any individual/group of an individual having an innovative idea/concept and recommended by GUIITAR Council – Nodal Institute will be eligible to get recognized as a startup under this scheme
- Startup (for the purpose of this scheme): Any individual/group of an individual having innovative idea/concept after legal registration as LLP, Partnership or Private Limited company. However, an entity shall cease to be a startup on completion of ten years from the date of its incorporation/completion or if its turnover for any previous year exceeds one hundred crore rupees.
- Provided that an entity formed by spilling up or reconstructing an existing business shall not be considered a 'Startup'.
- Innovative projects in any sector or any faculty/branch of science/technology/engineering/ agriculture/healthcare and no innovation worth its name is restricted from availing assistance just because of its particular sector, making this a sector agnostic scheme
- Startup which are availing incentive as a 'Startup" in any other 'startup scheme' of Government of Gujarat will not get incentives under this scheme. However, the startups/innovator availing benefits under the Students Startup and Innovation Policy (SSIP) would also be eligible to avail assistance under this scheme.

Procedure for approval of Startups:

1. Eligible innovator/startup shall get registered on the online portal to avail assistance under the scheme. https://startupgujarat.in/
2. The Registered Startup shall apply to GUIITAR Council-Nodal Institute with requisites in prescribed format.

3. GUIITAR Council-Nodal Institute shall evaluate, validate and recommend the startup project proposal to the office of the Industries Commissioner.
4. The startup project proposals will be scrutinized by the office of the Industries Commissioner and after due diligence, the startup project proposals will be placed before the State Level Empowered Committee (SLEC) for approval.

Assistance to Startups:

- **Seed support:** Up to INR 30.00 lakh per startup
- **Assistance to Startups having a significant impact on Society:** Up to INR 10.00 lakh per startup
- **Sustenance allowance:** INR 20,000 per month per approved startup for one year up to INR 2,40,000, INR 25,000 in case of at least one-woman founder / Co-founder per month per approved startup for one year up to INR 3,00,000
- **Skill development:** Up to INR 1 lakh per approved startup
- **Assistance to enroll and participate for the Acceleration program:** Up to INR 3.00 lakh per approved startup
- **Assistance for social impact:** Up to INR 10.00 lakh for startups having significant impact on society
- **Pre-Series A Funding:** INR. 50.00 lakh to INR 3.00 crore from Gujarat Venture Finance Limited (GVFL) for approved startups
- **Interest Subsidy:** Additional interest subsidy of 1%, Maximum up to 9% on term loans under the provisions of scheme for assistance to MSMEs.

Assistance to Nodal Institute:

- **Mentoring assistance:** INR 1.00 lakh per approved starups upto INR 15.00 lakh per annum
- **Organizing Promotional Event:** Reimbursement of 75% of expenses incurred maximum INR 5.00 lakh per event. In case of Women Entrepreneurship centric event, reimbursement of 90% of expenses incurred maximum INR 5.00 lakh per event
- **Organizing Acceleration Programme:** Maximum up to the matching contribution to the expenditure incurred

The recognition of GSFC University would complement the efforts of Govt. of India initiatives for promoting Start-up India, Stand-up India, Make in India and Self- Reliant India.

Interested Startups may apply at bit.ly/guiitar for receiving support under the aegis of Nodal Institute of GUIITAR Council. Potential ideas will be selected by Technical and University Level Startup committee formed by the GUIITAR Council.

GUIITAR Council

Design Thinking Bootcamp on Strategic Approach to Innovation & Start-up Creation

Mr. Kirankumar Parmar
Sr. Manager, GUIITAR COUNCIL

GSFC University, GUIITAR Council and Students Startup Innovation Policy (SSIP) conducted a Design Thinking Bootcamp on Strategic Approach to Innovation & Start-up Creation on 28th & 29th April 2021 from 09:00 A.M. to 04:00 P.M. through Google Meet Platform. Mr. D. R. Parmar, Jt. Commissioner of industries, StartUp Cell, Gujarat and Mr. Karmjitsinh Bihola, Founder, Innodesk Designovation Service, Gujarat, was invited to conduct the Bootcamp on the said topic.

Dr. Nikhil Zevari, Provost, GSFC University, has given the Inaugural address to the participants. He said without a strategy, and everything will fail; even the finest idea and strategic approach to innovation are most important. Looking at the current situation, he urged startups to solve society's problems to benefit humanity.

Mr. D. R. Parmar explained the role of the State Government to support startups in various stages and discussed the life cycle of a Startup Ideation→Validation→ Early traction → Growth/Exit. He shared sector agnostic and sector-specific policy for the development of the startup ecosystem in the state.

Mr. Bihola said Design Thinking is contextual, not a template-based approach. He further narrated Mr. Tim Brown, President and CEO IDEO, a definition that Design Thinking is a human-centered approach to innovation that draws from the designer's toolkit to integrate the needs of people, the possibilities of technology and the requirement for business success.

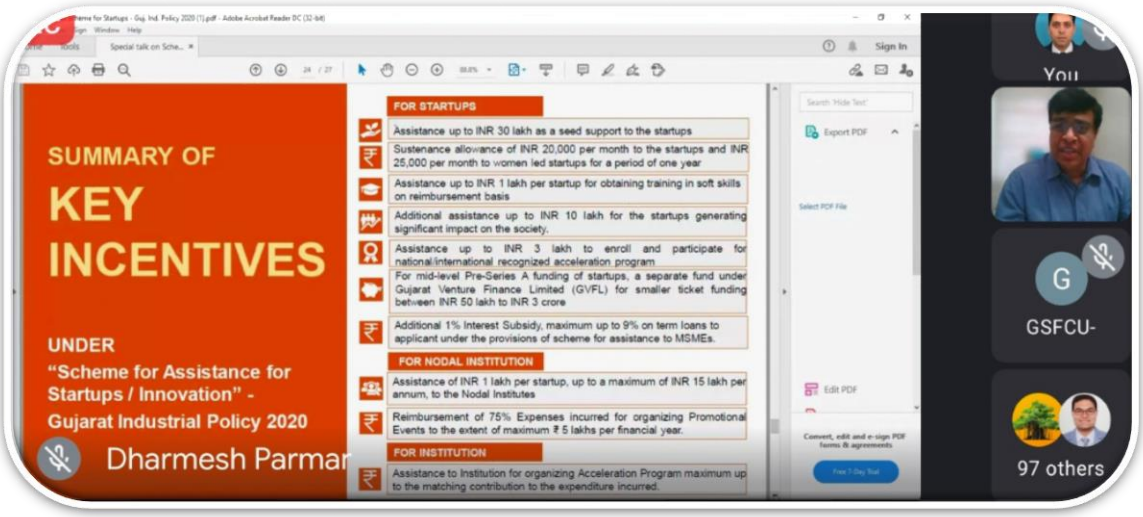
On the first day of Design Thinking Bootcamp, Mr. Karmjitsinh Bihola explained the concept on Why, What and How of Design Thinking, History of Design Thinking, Various Business School/Industry Design Thinking Process, Case Study of Baby Warmer, Innovation challenge for Bootcamp (healthcare sector) by team formation and problem selection, Observation AEIOU-SPA-POEMS frameworks, Empathy Tools & Frameworks such as 5W&H – 7Whys – Persona – Customer Journey Map – Empathy Map, the difference between Good design & Bad design, storytelling, research data for Design Thinking and exercises on miro tools (miro.com).

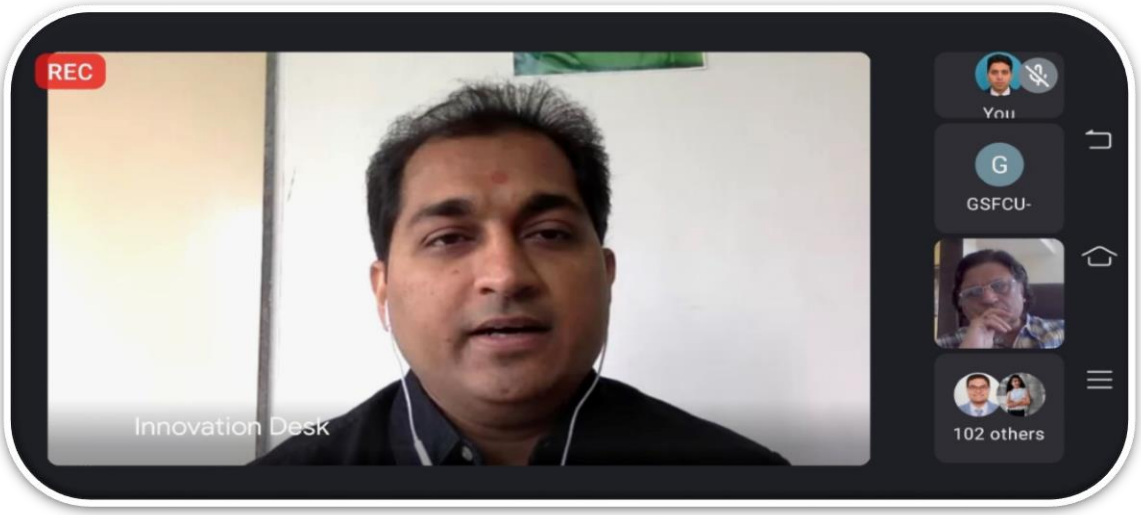
On the second day of Design Thinking Bootcamp, Mr. Karmjitsinh Bihola explained the concept of Define Problem Statement with 8 step process, 30 circle test, Creativity & Innovation, Innovation matrix, Ideation process, Ideation tools Brainstorming – Mind mapping – Visualization, Conceptualization, SWOT analysis, PEST Analysis, Prototyping, Testing and Validation with example/case study.

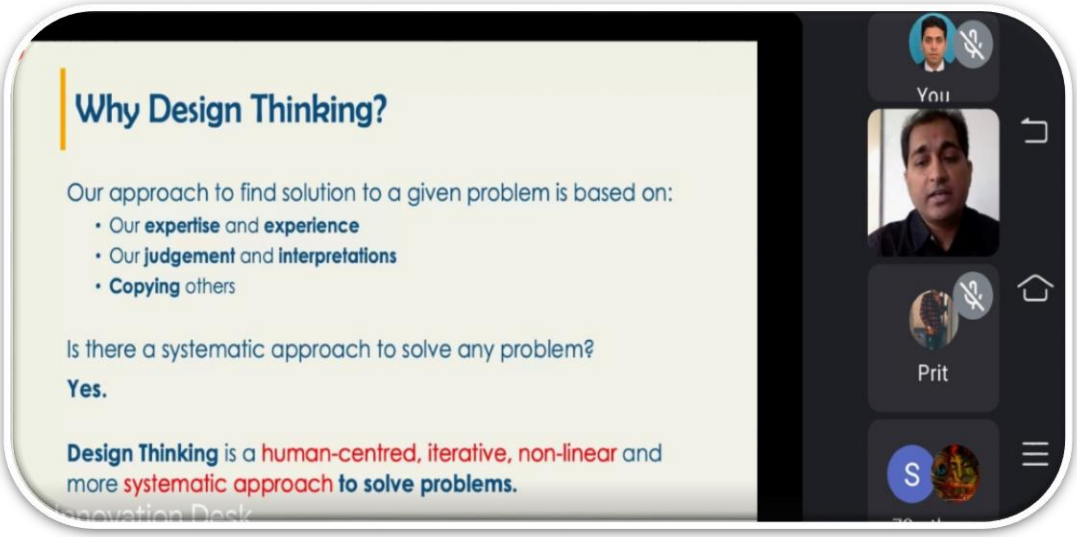
At the end of the session, participants Jahnvi Bundheliya, Mudra Patel, Kulwant Sheoran and Dibakar Roy shared their experience and pitched their idea.

Mr. Kirankumar Parmar has given a presentation on Student Startup and Innovation Policy (SSIP) scheme, GUIITAR Council incubation support and Startup India benefits to the participants. Dr. Saroj

Shekhawat, CEO-GUIITAR Council, gave feedback on the Design Thinking Bootcamp and Mr. Akash Bhavsar, Assistant Professor (Mech. Engg.), SoT, GSFC University expressed the vote of thanks.






Why Design Thinking?
Our approach to find solution to a given problem is based on:
• Our expertise and experience
• Our judgement and interpretations
• Copying others
Is there a systematic approach to solve any problem?
Yes.
Design Thinking is a human-centred, iterative, non-linear and more systematic approach to solve problems.
You
Prit
S


Student Startup and Innovation Policy (SSIP)
GSFC UNIVERSITY
EDUCATION RE-ENVISIONED
• GSFC University approved by the Education Department, Govt. of Gujarat to support students under Student Startup and Innovation Policy (SSIP) and signed MoU with Gujarat Knowledge Society (GKS), Govt. of Gujarat.
• UP to Rs. 2.00 lakhs grant for Proof of Concept/ Prototype Development
• Up to Rs. 25,000/- support for IPR
• Support to attend competition/hackathon
You
C
2008_Deva...
B


STARTUP INDIA
Launched by
Hon'ble Prime Minister of India
16th January 2016
PILLARS OF ACTION PLAN
1 SIMPLIFICATION AND HANDHOLDING
2 FUNDING SUPPORT AND INCENTIVES
3 INDUSTRY ACADEMIA PARTNERSHIP AND INCUBATION
You
Innodesk
Innovation
J.

Finvest Chronicle

Challenges and Opportunities during Pandemic

Dr. Chetna Parmar
Associate Professor – SoM
GSFC University

Economic Update

The global economy continues to grow at a healthy step, with strong data coming from major economies like the US, China and UK. The improvement was supported by demand recovery aided by a fall in Covid – 19 cases, fast roll-out of high vaccine savings in advanced Economies, large fiscal stimulus easing restrictions sequential improvement in employment and manufacturing.

The recovery momentum in India faltered on the back of localized lockdowns is lower than one imposed last year, but the effect on demand and economic activities, especially discretionary ones, was prominent. At the same time, the number of cases has fallen sharply from the peak seen during the first half of May 202.

	% of Population			
Countries	**Given 1+ dose**	**Fully Vaccinate**	**Population (in million)**	**Sector**
Israel	60	57	8.7	Health, Telecom, FMCG
UK	59	39	67.9	Business Franchises. Business Franchises Health, Telecom Aviation, Banking, Oil & Gas: Industrial Machinery, Gas & Chemicals. Life Sciences. Online Retail. Retail Market.
Canada	51	5	37.7	Health & Pharma, Telecom Aviation, Banking,

US	51	41	331.10	Health, Telecom Aviation, Banking, Industrial Machinery, Gas & Chemicals. Life Sciences. Retail Market.
China	47	NA	1439.3	Automobile, Life Sciences. Online Retail. Retail Market.
Germany	43	18	83.8	Health, Telecom Aviation, Banking, Pharma
EU	38	18	447.7	Telecom Aviation, Banking, Oil & Gas: Industrial Machinery, Gas & Chemicals. Life Sciences. Online Retail. Retail Market.
Brazil	22	11	212.6	Telecom Aviation, Banking, Oil & Gas: Industrial Machinery, Gas & Chemicals. Life Sciences, Online Retail,Retail Market.
Mexico	17	10	128.9	Industrial Machinery, Gas & Chemicals. Life Sciences. Online Retail. Retail Market.
India	13	3	1380.0	Health, Telecom, Agriculture Automobile Aviation, Banking, Oil & Gas: Industrial Machinery, Gas & Chemicals. Life Sciences.
Russia	10	7	145.9	Industrial Machinery, Gas & Chemicals. Life Sciences, Online Retail, Retail Market.
Indonesia	6	4	273.5	Health, Telecom, Agriculture Automobile

Sources: Bloomberg, FM Financials n

Indian Sectors Growth:

The economic revival was considerably impacted, with most indicators deteriorating sequentially. For example, while the goods movement through railways was relatively stable, manufacturing PMI was significantly lower than last month and above the contraction threshold of 50. In addition, the impact of lockdowns was visible with kay indicators like power demand auto registration E- way bills unemployment.

Indicators	April - 20	Sep -20	Dec-20	March-21	April- 21	May -21
Retail Registration Auto @						
2W	-52.5	-10.3	-2.1	-5.7	-19.1	-46.1
PV	-68.5	7.2	12.4	16.6	-2.2	-37.6
MHCV	-65.5	-49.9	-25.5	-9.7	-15.9	-46.2
LCV	-51.8	-8.0	-13.7	-3.1	-15.8	-51.6
Tractors	-60.8	38.7	18.7	21.8	3.1	-34.8
Gross GST Collection	-44.1	0.5	10.3	7.8	11.4	1.2
Average E-Way bill	-44.5	9.3	13.3	13.9	5.8	-14.2
Power Demand	-10.1	1.5	2.1	5.7	3.2	-4.7
IMPS Spending	8.9	40.7	41.1	36.2	33.1	21.5
Railway Freight Tonnage	-18.3	3.9	6.5	4.4	5.0	4.6
Railway Freight Earnings	-21.8	4.2	2.7	0.90	2.4	2.5
Manufacturing PMI	27.4	56.8	56.4	55.4	55.5	50.8
Services PMI	5.4	49.8	52.3	54.6	54.0	46.4
Unemployment	23.5	6.7	9.1	6.5	8.0	11.9
Labour Force Participation Rate	35.6	40.7	40.6	40.2	40.0	40.0

Sources: Raildrishti.com

While the number of cases has moderated from the recent highs, states have extended the lockdowns for few more weeks to check the spread. Although the economy is likely to open in a phased manner and the impact of consumer sentiments, higher health spending can result in economic revival facing some headwinds in the near term.

Environmental Canthus
Arid lands

Ms. Priyanka Pandya
Assistant Professor – Chemical Engg.
GSFC University

Part I: Characteristics of Arid Environments

1. Introduction:

Arid lands could be broadly and simply defined as regions where evaporation exceeds precipitation. Generally speaking, arid lands cover 47% of Earth's land surface and are home to roughly 2.5 billion people who rely directly on arid land ecosystem services for their livelihoods and support 50% of the world's livestock where 44% of the world's food is grown.

Fig: Arid Lands

Arid lands are a vital part of the earth's human and physical environments. The human population is thin except in the Indian arid zone, which is one of the most densely populated arid zones of the world. Arid land ecosystems play a major role in global biophysical processes by reflecting and absorbing solar radiation and maintaining the balance of atmospheric constituents.

Water scarcity is the predominant feature of arid lands. These arid lands are also characterized by persistent water scarcity, frequent drought, high climatic variability and various forms of land degradation, including desertification and loss of biodiversity.

2. Types of Aridity:

As per the Aridity Index, there are four categories of arid lands:

i. Hyperarid,
ii. Arid
iii. Semiarid and
iv. Dry subhumid regions.

The main criterion for the determination of aridity, lack of moisture, could be the result of several different agents, such as *atmospheric stability* (where anticyclone subsidence results in stable moisture-deficient air), *continentality* (the distance from oceans prevents the penetration of moisture-bearing winds), and *topography* (mountain barriers create rain shadow zones and cold oceanic currents reducing sea surface evaporation).

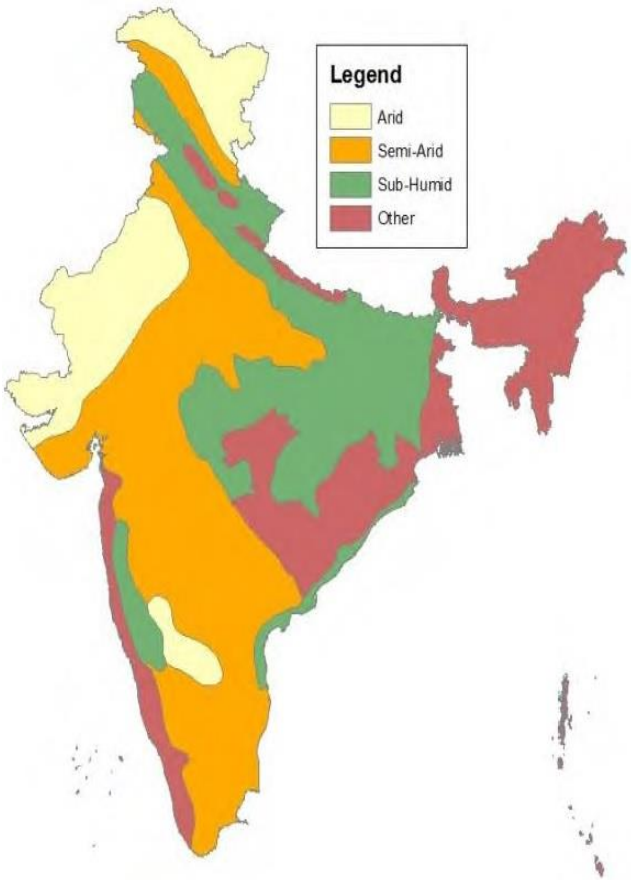


Fig: Aridity in India

3. Levels of Aridity:

The intensity of aridity varies from one place to the other due to the variation of moisture deficit and might even vary within one zone where various environmental factors play roles. However, broad climatic and environmental attributes could be used to divide arid lands into four types according to their aridity index: P/PET.

i. Dry subhumid areas with $0.5 < P/PET < 0.65$

ii. Semiarid areas with $0.2 < P/PET < 0.5$.

iii. Arid areas with $0.05 < P/PET < 0.2$.

iv. Hyperarid areas with $0.03 < P/PET < 0.05$.

Where.

P means annual precipitation,

PET means annual evapotranspiration

Students' Corner

Article Review – Leader Vs. Manager

Mr. Anshkumar Jain
CSE – II Semester
GSFC University

'Leader vs. Manager', the title of the article, written by Sadhguru, fascinated me and led me to read the article. Actually, most of people don't know the difference between leadership and management. Many slogans exist as to what is a leader as opposed to a manager - inspiring rather than directing, motivating rather than commanding. So, intending to get more information, I went through the article. Reading this article was one of the good decisions I'd made because I think this will be helpful in the future.

About the author - Jaggi Vasudev

Jaggi Vasudev, globally known as "Sadhguru", is an Indian yogi and author. He was born on 3 September 1957. Vasudev earned a bachelor's degree in English from the University of Mysore and has been teaching yoga in southern India since 1982. In 1992, he established Isha Foundation near Coimbatore, which runs an ashram, hosts a yoga center, and has been involved in various activities in spirituality, education, and the environment.

Vasudev is the author of several books, including Inner Engineering: A Yogi's Guide to Joy (2016). As a public speaker, he has spoken at the United Nation's Millennium World Peace Summit, the British parliament's House of Lords, the Massachusetts Institute of Technology, and the International Institute for Management Development. He has also spoken at the annual World Economic Forum in 2007, 2017 and 2020. 2017, he was awarded the Padma Vibhushan, India's second-highest civilian award, by the Government of India for his contribution to social services.

Sadhguru's ability to shape language into a tool towards self-realization has unveiled the deeper intricacies of both the human and the larger cosmos. His books and DVDs offer life-altering perspectives and a taste of existence the way it is. Moreover, he uses the language so that every age group can relate to him.

About the Article - Leaders vs. Managers

This article is all about Sadhguru's thoughts about leaders and managers or bosses. Sadhguru believes that whatever the nature of the activity that we have chosen for our life if we wish to be leaders in those situations, the first thing is we must be able to lead by example. Not by words, trickery or cunning, but by example. Fundamentally leading people means your ability to take people in a particular direction you wish towards a specific goal. If this has to happen, you must be able to inspire them to go on by themselves in that direction. Only when people are so motivated to do what you want them to do will they do more than you thought of doing can you lead them. If you have to keep them in line to get a job done constantly, it won't be easy to be a leader.

The biggest problem with the so-called leaders of the day is, we are not really producing leaders; we are just producing managers and supervisors. They come out as leaders and they suffer every moment of their life. They have petty ambitions; they want a piece of the planet. Some people want a big chunk; others wish to a small chunk. The size of what they can bite goes on increasing, but still, it is a petty ambition because it is just an exaggeration of what you have already seen. You cannot desire something that you have not seen. You only desire something that you have seen – whether mildly exaggerated or overly exaggerated-depending on who you are.

You cannot lead people when you have to constantly supervise and manage them. As the kind of team you are managing grows beyond physical contact, then teaching people in huge numbers will be very difficult if you cannot lead them by inspiration. To inspire people to do whatever is required out of them, the way you exist must be that kind of an example that people naturally stand up and want to do things that are necessary to be done. Only then leadership becomes an effortless process.

A leader needs a profound sense of insight that he is able to see something that other people cannot see. A leader means, in some way, you are sitting on a perch. If you sit on a perch and don't see any better than others, you will become an object of ridicule. If you see better than others, you are a natural leader; otherwise, you are a forced leader, and everybody suffers you and you suffer them in turn. It's an ongoing process of misery.

Sadhguru explains the difference between a leader and a manager, encouraging one to move from merely doing a job to cultivating a deeper insight. In a profound poem about leadership, he expresses how leadership does not exist in nature and how everything is moved spontaneously by a special force. He also shares an interesting perspective on how a leader must find loopholes in their intelligence.

Sadhguru explains the difference between a leader and a manager, encouraging one to move from merely doing a job to cultivating a deeper insight. In a profound poem about leadership, he expresses how leadership does not exist in nature and how everything is moved spontaneously by a certain force. He also shares an interesting perspective on how a leader must find loopholes in their intelligence.

Take away from the Article

After going through the article, maybe no one wants their personality to be as a manager. So I got to know about the difference between the leaders and bosses or managers. First, Sadhguru reveals the secret sauce for effective leadership in these five wisdom-packed nuggets. Then, approaching the subject from a completely different angle, he explains how leadership is not a means for dominance but a huge privilege and an opportunity to make a meaningful difference in people's lives.

This article made me think about all these things, leading us to become leaders, I think. I've always liked the way Sadhguru writes. I conclude my view on this beautiful article by recommending it to all those who haven't read it yet.

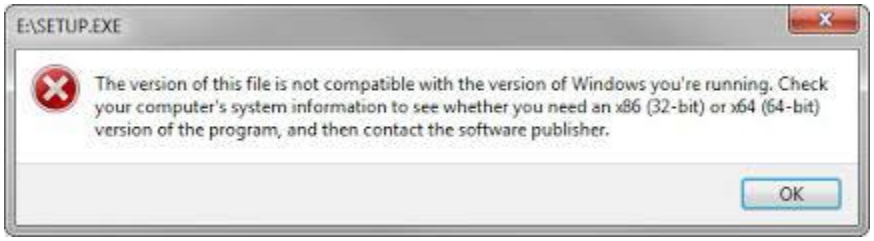
Students' Corner

Low-spec Gamer: 32 bit V/S 64 bit

Reading 'bit'ween the lines

Mr. Kshipra Jadav
CSE – II Semester
GSFC University

If you have been installing programs and games on your system for a while now, we're sure that you have come across this error at least ONCE in your life:



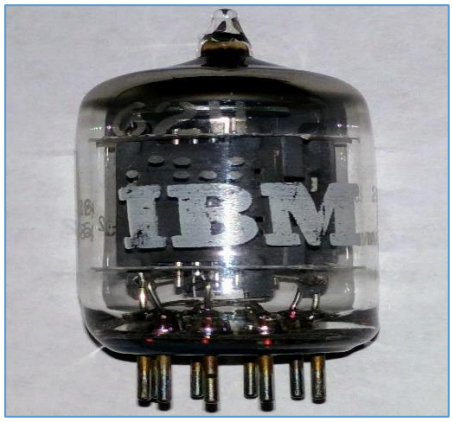
and we're also sure that you just downloaded the 32-bit version of the required program and went on with your life. But what IS 32-bit 64 bit? In fact, what IS a bit? So why are there 32 and 64 written in front of it?

Don't worry. We're here to answer all of your questions and random thoughts regarding these seemingly random numbers. This article has been divided into four parts:

1. What are a BIT and its humble origins
2. How are bit values calculated
3. 32bit vs. 64bit
4. How does 64bit architecture affect gaming and other daily tasks?

What is a BIT

Before we fuss about 64 bit and start throwing around large numbers and some technical jargon, let us first understand what a BIT actually is. What does it mean when we refer to bits and bytes. To know that, we need to look at this image:



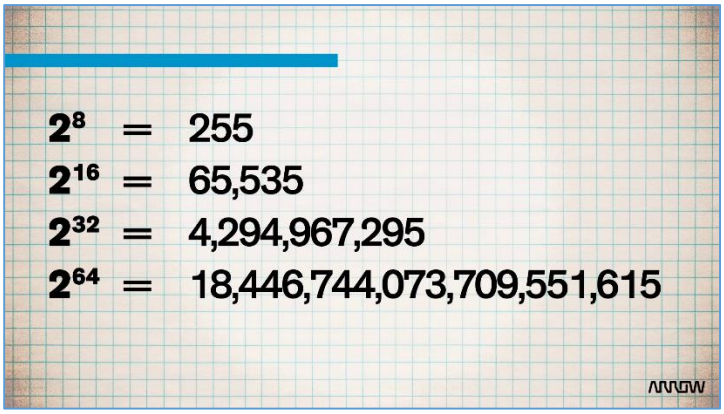
This vacuum tube was used to build very early editions of modern computers when they still occupied a room to function. This has just two states. If electricity is flowing through it, it is ON. If electricity is not flowing through it, it is OFF. And that's it. That is a BIT. A bit is a piece of information that could have only two possible values: ON or OFF. Now, in the computer world, these values are denoted by 0s and 1s. So, if the state is ON, the value is one and likewise, if the state is OFF, then the value is 0.

Now, imagine a small box in your head. You have two choices; you can either put 1 in it or put 0 in it. Now, imagine 8 of these boxes side by side. You have a BYTE in your head now. So, 8 BITS make up 1 BYTE. Hence, when we say that we have 16 GIGABYTES of RAM in our PC, we refer to $16 \times 8 \times 10^9$ BITS of storage, i.e., 128 BILLION BITS or 128 BILLION boxes either have 1 or 0 stored in them.

How are bit values calculated?

Over time, it became difficult to write and speak; all the bit values were getting exponentially more significant. So, just like BILLION can be simplified to GIGA, just like that, bits are simplified using a formula.

To calculate the number of bits, we need to use a simple formula: 2^n, where n is the number of bits. So, when we say 2-bit, we actually mean 2^2 bits, i.e., 4 bits. You can find a convenient chart here:



This chart signifies that if we have a 2-bit system, it is capable of 4 permutations of the numbers 0 and 1. That comes out to be 00, 01, 10, 11. Those are all the possible values that the system is capable of handling. Hence, as we move upwards in bits, the system becomes capable of handling more

permutations of 0 and 1, it becomes capable of doing more calculations and it becomes more capable of addressing more memory at once.

This brings us to the main topic of this article: 32bit vs. 64bit.

32bit vs. 64bit

This is the moment you all have been waiting for. So what exactly do 32bit and 64bit mean, and how is one better than the other?

RAM

Well, as discussed above, 32bit means that the CPU can address 2^{32} values at a time and that comes out to be approximately 4 billion. If you do some conversions, you can directly co-relate this to the maximum amount of RAM that the 32 bit CPU can address and that comes out to be 4 Gigabytes. Hence, if you have a 32 bit CPU, it can address only 4 GB of RAM, so, even if you have 16 GB of RAM installed in your system, the CPU can only recognize 4 GB of it and will work within that limitations. When we go to the 64-bit side of things, we see that a 64 bit CPU can address 2^{64} values at a time and that comes out to be 18 quintillions. Now, if you convert that to bytes, you get approximately 16 EXABYTES or 16 BILLION GIGABYTES of RAM at once. Now, sure, that is a LOT of RAM but as correctly stated by Ken from Computer Clan - "**Now, that may sound amazing but remember, big numbers are only useful if your software knows how to leverage those large amounts of RAM in the first place. But let's leave it to the developers for now.**"

Speed

If you have a 64 bit CPU, it can perform faster than a 32 bit CPU and before we see how it acts faster, we first need to understand the term 'clock speed.' Now, clock speed means how fast a CPU can perform a certain task in a second. Hence, if your CPU is clocked at 2 GHz, it can perform 2 BILLION tasks per second. For example, your mom requested a glass of water from you. So, you go to the kitchen, fill a glass of water, take it to your mom, wait for her to finish it and then take the glass back. Here, you have completed ONE CYCLE. Here, the CPU is you, the software utilizing the CPU is your mom and your instruction set is: "bring me a glass of water," and how many times you (the CPU) can perform that particular instruction set is your CLOCK SPEED. So, here, you encounter a software bottleneck first rather than a hardware bottleneck but more on that later.

Once we know what clock speed means, we can understand how 64 bit CPUs are better than 32 bit CPUs. So, a 64 bit CPU can process 64 bits per clock cycle, while a 32 bit CPU can only process 32 bits per clock cycle. Hence, going back to our example, if you were a 32 bit CPU, you'd only have room for the instructions "bring me a glass of water," whereas if you were a 64 bit CPU, you would have extra room for the instructions "bring me a glass of water and put some ice in it too". Here, the "put some ice in it too" part wouldn't have been possible if you were a 32 bit CPU as you could only process "bring me a glass of water" per clock cycle, but when you are a 64 bit CPU, you can also process "and put some ice in it too" with the old instruction set per clock cycle. Hence, 64 bit CPUs can theoretically process more data per clock cycle than 32 bit CPUs can do.

The reason we have used the word THEORETICALLY in the above paragraph as we mentioned that you would encounter a software bottleneck first rather than a hardware bottleneck. To put it in perspective with our example, you (a 64 bit CPU) can only process the extra information (adding ice to the water) if your mom (the software) can utilize it (drink the water) fast enough. Hence, if your mom is slow in drinking the iced water or drinks it at the same speed as regular water, there is no real need for you to process more information now.

Hence, you are bottlenecked by your mom's ability to drink and hence, you will encounter a software bottleneck first rather than a hardware bottleneck.

Use of 64 bit CPU in gaming and other tasks

Whenever you install a program on your computer, it generally comes with two executables: a 64-bit version and a 32-bit version. As a rule of thumb, if you have a 64 bit CPU and an OS, then always launch the 64-bit version as it will be able to address more RAM and will be able to process information faster. Many modern games REQUIRE you to have a 64-bit machine and won't even run on 32-bit machines.

The real problem starts when 32-bit applications are converted to 64-bit applications. Usually, when you have to make a 64-bit application out of an already existing 32-bit application, you need to rewrite the whole thing and then optimize it for 64 bit so that it can make use of the full potential of 64-bit architecture, but many devs just skip this step and instead of rewriting their whole program, they just convert it to 64 bit. This results in poor performance and the program obviously not being able to make use of all the features of 64 bit.

This brings us to the end of this article. We hope you found the information useful and all of your doubts must be cleared about the topic.

Think Aloud
Race against TIME

Mr. Dhairya Patel
Teaching Assistant – Physics
GSFC University

2020 may have felt like it lasted forever, but it was the shortest year in decades. In fact, it was 1.3 milliseconds shorter. The planet is now spinning faster than it has any time in the last half-century, with 2020 containing 28 of the fastest days on record since 1960 and 2021 is expected to be even faster, which has ignited a fiery debate about what we should do to keep the world on track.

It may sound weird, but a shift in the planet spin is normal things like the pull of the moon, jet stream winds and plate tectonics all affect just like an ice skater draws in their arms to spin faster. Anything that moves mass closer to earth's access speeds up the planet's spin making the days a few milliseconds shorter. It doesn't seem like much that these subtle changes in earth spin can cause major headaches for anyone trying to keep their clocks in sync, but first, here's a little context on how our timekeeping has evolved.

Before we had cell phones, computers or GPS to call time, we had the sun. Ancient civilizations measure time using the earth's rotation relative to the sun with devices like sundials. We know this today as solar time. Around 150 a.d, Ptolemy divided earth's 360 degrees of latitude and longitude into 60 equal parts, into the first minute and then again into a second minute, the basis for a second. The development of quartz clocks in the 1930s made timekeeping even more precise and allowed us to measure variations in the earth's rotation for the first time. Then atomic clocks revolutionized timekeeping in 1955. In England, the national physics laboratory built the first accurate cesium clock and 12 years later, the general conference on weights and measures redefined the second based on oscillations of a cesium atom. This ultra-precise definition of a second is the foundation of international atomic time. The average of hundreds of atomic clocks worldwide, making it our most accurate timekeeper. Atomic time can measure the planet's spin down to the millisecond, but the increase in accuracy comes with the downside. Since atomic time ticks away at an incredibly constant rate, it doesn't slow down or speeds up with the spin of the earth, so over the years, the atomic time has slowly drifted out of sync with the fluctuations of the planet whenever the difference between solar time and atomic time threatens to exceed 0.9 seconds a leap second gets added to coordinated universal time (UTC) to make up for the difference.

UTC is kept using atomic clocks, but with all those leap seconds added today, we've added 27 leap seconds since 1972. The extra second gets squeezed in at midnight UTC, which is where the heated debate comes in. Those who want to abolish the leap second say that in addition to being cumbersome, it would take 5000 years to notice even a one hour difference between earth's rotation and the atomic clock and when one was added in 2012, the reservation system used by Qantas airline collapsed and several websites including Reddit, Mozilla and Gawker crashed when their system failed to handle the extra seconds. However, those in favor of the leap second argue that the technical issues are overblown. A few years later, in 2015, another second was added and there were only a few minor hiccups.

The standoff is real and countries have already taken sides with the U.K. and Russia in favor of keeping leap seconds and countries like the U.S. and China advocating their drop. However, at the 2015 world radio communication conference held by the U.N. countries, they couldn't agree, so they decided to postpone their decision until their next conference in 2023. But no matter how long they debate, the earth will continue to spin and it's up to the international earth rotation and reference system service or IERS to determine if a year needs a leap second or not.

Last year earth's rotation was fast and didn't need a leap second - at least in the traditional sense because it was spinning so fast the average day was estimated to be 0.05 milliseconds shorter than a typical 24-hour period. Because of this, the group considered something they never had before adding a negative loop second instead of gaining a second; we would lose one and this year, scientists expect it to be even speedier while the group ultimately decided not to add this negative leap second last year, they might have to when they meet this June again. So, we talked about removing a second from our clocks, but what about time itself? So, all I can say is, 'It's all about TIME'.

Lesson to Learn
Super Special Skills for Success

Ms. Sneha Bajaj
Assistant Professor – English
GSFC University

There is no doubt that specialized skills can help you stand out amongst job applicants, but they aren't the only skills that recruiters seek. In addition, many transferable soft skills are sure to come in handy throughout your career, from professional communication to motivational intelligence. However, here are few abilities that make you an invaluable asset in the workplace.

Professional communication

The importance of professional communication skills cannot be overstated whether you're communicating with co-workers through email, phone, or video call. What you say and how you say; it matters. You may have heard that the moment you contact a potential employer, they begin interviewing you. Therefore, any email correspondence you have with your interviewer prior to your initial phone screen or appointment is critical. If you cannot clearly express yourself via email, they may question whether or not you will be able to express yourself in the office. In general, speak clearly and be concise and most importantly, if you need to ask a question for clarification, go for it.

Time Management

Prioritizing your daily tasks is of utmost importance. It can help eliminate any pressure you may feel while piling up the functions of your to-do list. Check your inbox at the designated time and answer your messages as soon as they arrive in your inbox. Finally, don't skip your lunch break. It may seem like a good idea at the moment but skipping your break inhibits productivity later in the day. Instead, treat yourself to dessert and be thankful for 30 minutes of me-time.

Be a Team Player

Do you work well in groups and on teams? If so, congratulations! You possess a skill that employers value and few people can claim. Being a team player becomes much easier when you're willing to cooperate with and appreciate your co-workers and their ideas. But don't let this stop you from taking on a leadership role when appropriate by showing confidence in your own abilities. Your other team

members will be inspired to do the same. Soon your team will be running like a well-oiled machine, with each individual focusing on the tasks that are best suited to them.

Emotional Intelligence

Emotional Intelligence is not an easy skill to hone, but once you can use it, you will instantly become more valuable as an employee and improve the overall quality of your life. This form of intelligence requires that you recognize not just your own emotions but the emotions of your co-workers and customers as well. The ability to wear multiple hats while on the job is excellent, but the ability to step into someone else's shoes is magical. Always take a moment to pause before commenting or asking questions. Learn from constructive criticism, no matter how harsh it may seem. One of the challenges that come with emotional intelligence is the ability to recognize when you're wrong. When you make a mistake, it's crucial to have the strength to admit it and redirect your actions. On the flip side, don't forget to show grace when others make mistakes; nobody's perfect.

Keep up your Commitments

To be on time is to be late; to be early is to be on time. Consistently showing up early for meetings sends an important signal that you're reliable. If you intend to arrive early, but life intervenes, you still have a chance to be on time. Unfortunately, if you want to arrive on time, that is not the case. A missed phone call may appear to be a minor annoyance, but the more dependable you are with petty details, the stronger your excellent reputation develops. Finally, if you can't demonstrate that you're worthy of their confidence, your employer and co-workers may lose faith in you and may pass you by in favor of someone else.

Organization

Your emails are piling up faster than you can respond to them. You've long since stopped trying to delete the junk mail as it comes in and why isn't your spam filter working anyway? Take a deep breath; emails can smell fear. Organization skills begin with a decision to clean up and clear out. You might have to contemplate the unimaginable folders to prevent the dreaded. Create folders for specific people and/or projects and for the product ads that you may find helpful at a later date. Move those junk messages to your spam folder if necessary. Use a calendar app to keep track of important dates and deadlines so that you can focus on one task at a time. Don't forget to set reminders for your in-progress and upcoming projects. Finally, keep your desk as organized as possible. The pile of papers next to your laptop makes you look busy, which unfortunately is not the same as being productive. Keep your space clear and your mind focused on the task at hand.

Flexibility

The ability to go with the flow without compromising quality is invaluable in any career. As long as there are plans, there will be wrenches to mess them up. But as long as you're flexible, you can keep plugging along with confidence. Roll with these tasks as they arise and remember that you are only human; you can only do what you can do; no more, no less. Approach each task with a positive attitude and nothing can stand in the way of you doing your best.

Sales

You don't have to work in the sales department to hone your sales skills. In fact, the ability to sell comes in handy in virtually every career on the planet. Do you know your product? Can you use it well enough to teach someone else? How does it work? This is essential knowledge for any employee. Another invaluable sales skill is the ability to speak clearly and empathetically. Get to the point but remember that you're not a robot. Human beings value authentic conversations with other human beings. No one enjoys the shallow phone call or meeting. Finally, become a great listener. This is the only way you'll be able to speak and ask intelligent follow-up questions during conversations.

Keep Learning New Skills

It's easy, once you've landed a job, to believe that you are unstoppable. Once you have the uniform and the desk and your list of tasks, you are on fire, but not for long. Technology is changing every day. The skills that were impressive just a few years ago are now sadly outdated. The ability to recognize when updated or new skills are required is invaluable in any career. While you're gobbling up information on the latest tech and marketing trends, don't forget that professional skills aren't everything. Outside of work, discover practices that inspire the creativity and mindfulness you need to do your job well.

Grace Under Pressure

Finally, any career will require you to handle deadlines, crises and stress with grace. Do your best work. Even when your efforts feel futile, stay calm and collected under challenging situations. Most importantly, reframe tasks that you don't enjoy into challenges to be overcome. By keeping a positive attitude in the midst of the proverbial storm, you'll remain connected to your inner joy and if you can do that well, you're virtually invincible.

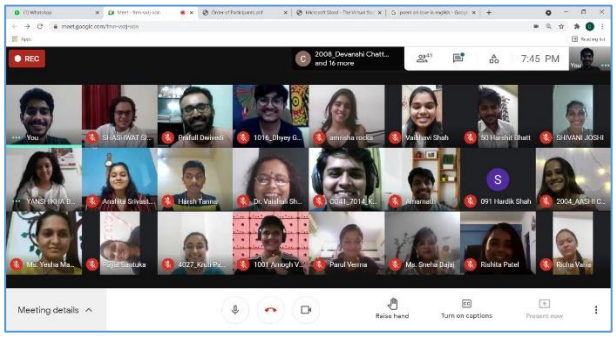
Achievement & Accolades - GSFC University

Ms. Shivani Joshi
Teaching Assistant – English
GSFC University

The Students' Managed Clubs have vibrantly been organizing various activities throughout the semester. The enthusiasm and the zealous participation of the students in various activities are very vital for their grooming and holistic development. This article has captured the details of all the events that took place throughout the past two months.

The Virtual Stage - 29 May 2021

The Cultural Club of GSFC University has commenced an Open Mic Series titled – THE VIRTUAL STAGE. The series invites participants from all over India registered to perform under the three categories – Music, The Story Telling, Comedy.

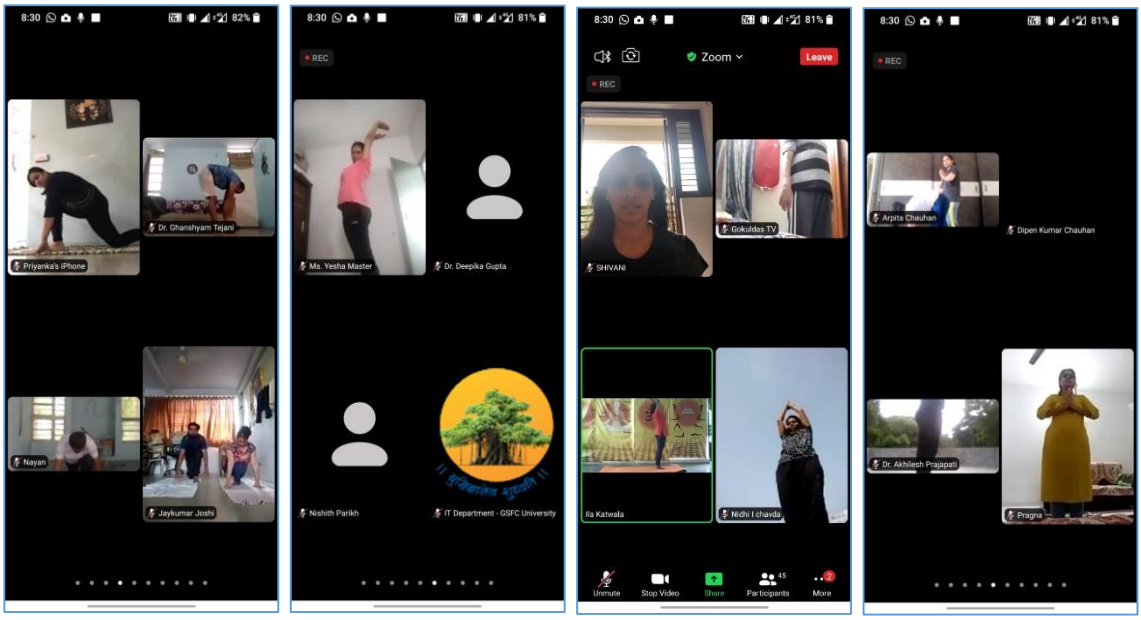


The Environment Day Celebrations – 5 June 2021

The G-Force – Environment Club of GSC University celebrated World Environment Day on campus by plantation drive on campus.

Celebration of International Yoga Day – 21 June 2021

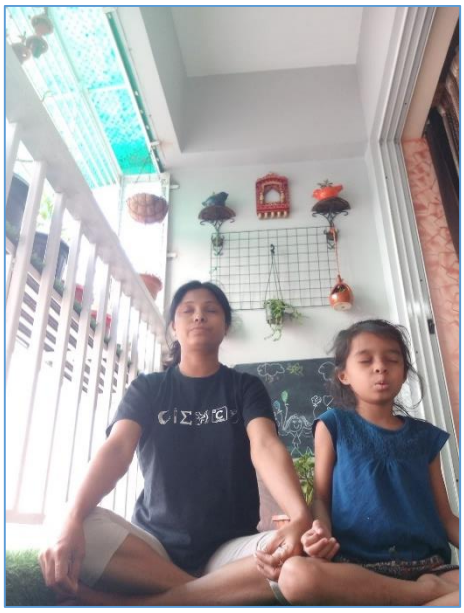
The Aarogyam Club of GFSC University organized a Yoga session on **International Yoga Day** on Yoga for Immunity. Ms. Ilaben Katala was invited as a Facilitator for the session. The university staff members and the students enthusiastically participated in the early Morning event.

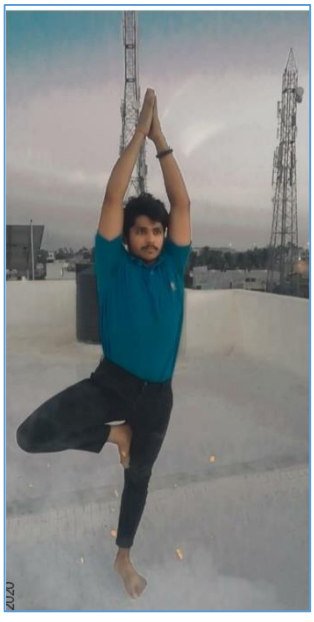


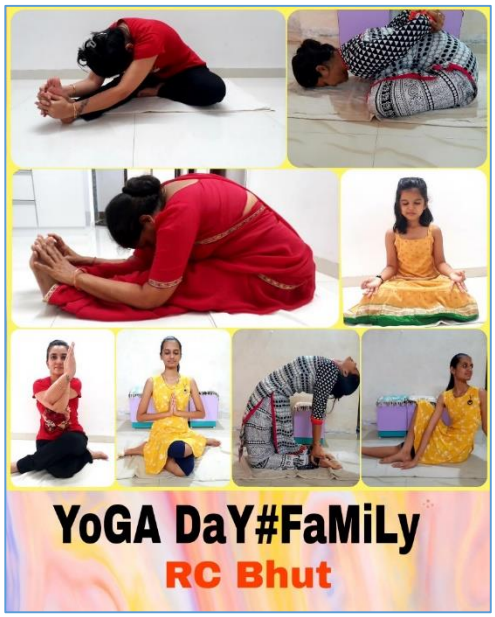
Yoga with Family – 21 to 26 June 2021

The Cultural Club of GSFC University encouraged everyone to do Yoga with their Family members and invited the photographs. The photos of participants –

1. Dr. Ghanshaym Tejani
2. Dr. Deepika Gupta and her daughter
3. Mr. Harshit Bhatt
4. Mr. Jay Joshi and his family
5. Ms. Rashmita Bhut and her family

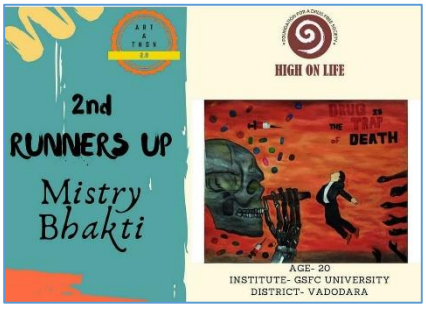


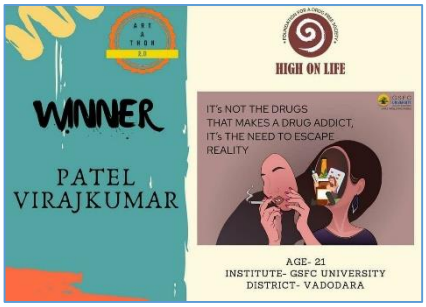




Achievements Off-Campus:

In the month of December, the university students participated in ART_E_THON organized by the High on Life Foundation in collaboration with the Narcotics Bureau of India. The 11 students sent their entries and out of more than 3500 entries from all over India, our students successfully bagged three trophies. What makes this more remarkable is that GSFC University is the only university to win in different categories and the highest number of trophies. The GSFC University has also been awarded a special trophy as an acknowledgment.





Happening Around the World – Infolinks

Title: - Kolkata Scientist Invents Ventilator That Fits In Your Pocket

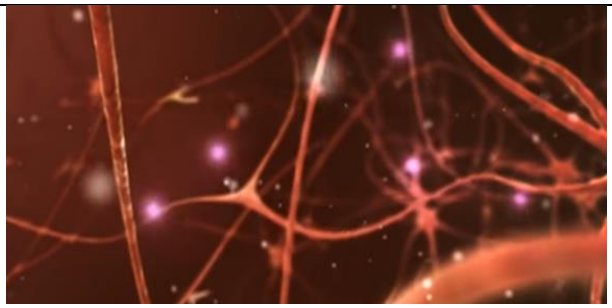
Link:- https://youtu.be/n_Oxhn9yYcM

Title: - Hydrogen fuel cell train | World First Hydrogen Fuel Train | How do hydrogen trains works?

Link:- https://youtu.be/3MS1yMCg_ts

Title: - How Making Graphene Aerogel in Space Will Shape Future Exploration

Link: - https://youtu.be/nctQVS8EJ-8



Title: - This equation will change how you see the world (the logistic map)

Link: - https://youtu.be/ovJcsL7vyrk

Title: - Record breaking space jump - free fall faster than speed of sound - Red Bull Stratos

Link: - https://www.youtube.com/watch?v=mJxsj51d-Pk

GSFC UNIVERSITY
EDUCATION RE-ENVISIONED

GSFC University, Vigyan Bhavan,
P. O. Fertilizer Nagar,
Vadodara-391750, Gujarat, INDIA
T: 0265 – 3093740
: For Feedback kindly mail us at:
feedback.newsletter@gsfcuniversity.ac.in

FOLLOW US ON :

gsfcuniversity gsfcuniversity

www.gsfcuni.edu.in