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Electrical & Electronics Engineering Department
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Reproducible Research with Python and LATEX
Invigorate Your Dreams
The (I am) Perfect World

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Editorial Board



❖ Faculty Coordinator: Ms. Ankita Singh

❖ Editor- in-Chief: Ms. Isha Shrivastava

❖ Co-Editors : Ms. Harshita Gupta

Principal Message



Technical Education is the most potential instrument for socio-economic change. Presently, the engineer is seen as a high-tech player in the global market. Distinct separation is visible in our education between concepts and applications. Most areas of technology now change so rapidly that there is a need for professional institutes to update the knowledge and competence.

Institute of Engineering and Science, IPS Academy is a leading, premium institution devoted to imparting quality engineering education since 1999. The sustained growth with constant academic brilliance achieved by IES is due to a greater commitment from management, dynamic leadership of the president, academically distinctive and experienced faculty,

Disciplined students and service oriented supporting staff. The Institute is playing a key role in creating an ambiance for the creation of novel ideas, knowledge, and graduates who will be the leaders of tomorrow. The Institute is convinced that in order to achieve this objective, we will need to pursue a strategy that fosters creativity, supports interdisciplinary research and education. This will also provide the students with an understanding and appreciation not only of the process of knowledge creation, but also of the process by which technology and knowledge may be used to create wealth as well as achieve social economic goals.

I am delighted to note that the engineering graduates of this institute have been able to demonstrate their capable identities in different spheres of life and occupied prestigious position within the country and abroad. The excellence of any institute is a measure of achievements made by the students and faculty.

Dr. Archana Keerti Chowdhary
Principal

HOD'S Message



Our Country is passing through a critical phase of growth. If you take an over view of this growth, we find that we are developing new energy dimension and electrical energy plays the most vital part in total energy context. In fact, electricity is taking the role of indispensable energy form of our daily life. Ours is the sixth largest country in terms of global energy consumption. The last decades of economic growth of our country has brought an unprecedented demand for energy. The installed electrical generating capacity of our country stands at 162366 Megawatts in 2010, and is projected to be 950000 MW by 2030. This large scale use of electrical energy will definitely demand a large team of electrical engineers to manage its use. All the same there is continuous pressure of balancing our ecology especially in context to global warming. This is forcing to ensure efficient use of electrical energy. Electronic power control is offering new tools in management of electrical energy.

Electrical and Electronics engineering together is a dedicated branch of engineering to fulfill all challenges of electrical energy futures.

Prof. Manish Sahajwani
HOD

Reproducible Research with Python and LATEX

Research is often presented in formats like slideshows, journal articles, books, or even websites. However, these documents are not the research, but only a means to announce a project's findings. Reproducible research refers to the idea that the ultimate product of research is the paper along with the computational code, data, etc. used to produce the results, so as to enable reproducibility of results and create new work based on the research. Reproducibility, one of the main principles of the scientific method, is the ability of an entire experiment or study to be duplicated, either by the same researcher or by someone else working independently. Let us first see Python and LATEX in brief before looking at a motivation for reproducible research. Python Programming Python is an open-source language created by Guido van Rossum and was first released in 1991. The Python interpreter and the extensive function libraries are freely available and follow a community-based development model. The language is named after the BBC show "Monty Python's Flying Circus". The present versions are 2.7 and 3.6 (the versions are not fully mutually compatible). Python is an interpreted language, which saves considerable time during program development because no compilation and linking is necessary. It has a clean elegant syntax and indentation structure which makes it easy to learn and use for beginners. Programs written in Python are much shorter than equivalent C, C++ or Java programs.

Being a very-high-level object-oriented language, it has high-level data types built in such as flexible arrays and dictionaries. It is therefore a powerful programming language and is applicable to a much larger problem domain. Today, extensive specific libraries written in Python are available for numerical computation, statistics, machine learning, control systems, big data analytics, simulation, application development, file operations, web development, financial applications, and graphing and visualization. LATEX Typesetting TEX (pronounced tek) is an open-source typesetting system for creating text files. It was created by the renowned computer scientist Donald Knuth in the early 1980s out of frustration that the typesetting method for printing the second edition of Volume 2 of his well-known monograph The Art of Computer Programming had become obsolete. In the early 1980s, Leslie Lamport created LATEX on top of TEX in the early 1980s to provide a higher level language to work. A LATEX file consists of content in simple text form and includes mark-up tags for formatting, referencing and document structuring. Since a LATEX file is a text file, it can be opened using any text editor. For instance, in order to render the mathematical equation $\Gamma(\alpha) = \int_0^\infty e^{-x} x^\alpha dx$ we type the following in a LATEX document: `\displaystyle \Gamma \left(\alpha\right) = \int_0^\infty e^{-x} x^\alpha dx`

Clearly, the interface in LATEX resembles a programming language IDE (integrated development environment), and this seems intimidating. However, the output document (which is usually a .pdf file) has uniform formatting, beautiful mathematical equations, polished tables, and consistent output across all computer systems. Therefore, LATEX is widely used for publication of books and scientific communication. Also, websites such as Wikipedia use TEX to render mathematical equations. Reproducible Research In research, to prevent what is called as "garbage in, garbage out", we prefer that data not be manually copied into analysis tools. Therefore, programming tools are used for linking with data files and extracting data. The same tools carry out analyses and generate results. However, these analyses results remain delinked with publication tools during dissemination of results, i.e., incorporating the results into the report requires manual copying, which (obviously) is an error-prone process. What reproducible research essentially aims to do is create this linkage. Suppose we want to include, in a report, the value of compounded returns for a given principal, compounding rate and compounding time. We compute the returns using a calculator, spreadsheet or computer program, and copy the results into the report. Now, if the compounding rate changes, the revised results would be copied into the report, possibly at multiple locations, again, which can introduce errors. This provides the motivation for incorporating some form of automation into the report-writing process. We will see how Python can be integrated into LATEX for accomplishing this goal.

Invigorate Your Dreams

“You have to dream before your dreams can come true”, aptly said by the ‘People’s President’, Dr. APJ Abdul Kalam. Dreams serve as our goals, as long as we believe in them and constantly follow them. Life without dreams is like the night sky without stars; no sparkle, no shine, no vigour and all darkness everywhere. The essence of life is in doing and enjoying things that makes you happy. If we let go of our dreams, then life serves no purpose. The dream to be ‘healthier’, comes along with the commitment to lead life in the so called ‘healthier’ way. It further paves the way to actions. First, set the goal that finally helps in achieving the dream and then perform to attain the goals. Initially the gap between the goal and the dream would be enormously large. As we set higher and higher goals, this gap diminishes. Of course, as the intensity of goals increases, the efforts needed to achieve these goals would also increase. But the ultimate dream of attaining success would truly be a motivation to put in more and more efforts at each stage of the goal achievement process. All of us are unique and capable enough to do meaningful things in life. But being ‘unique’ makes the difference. Dreams enlighten the so called ‘uniqueness’ of an individual. We need dreams to cope up with the stresses we have in our everyday lives. But, if we give up, we end up nowhere. The path of fulfilling dream is not always smooth. Setting the right goals and choosing the right way of achieving the goals is equally important. Here comes the need of invigorating our dreams. Dreams pave the way to success. No matter how we need to succeed in life, our dreams can always get us there. It being cracking a job interview, or starting own

business or learning something challenging, dreams will help us succeed in all ways. Just believe and follow them. They would definitely lead to a state of positivity. The dream of one’s life is not essentially the pictures he sees in his sleep. The dreams in our sleep would no longer be a part of us, once we are awake from the sleep. But the dreams of life comes true only when we are awoken. So the right dream can lead one to the most peaceful state of mind. The satisfaction of achieving such a dream is again the motivator to dream and dream.

Lavina Kajlani
EX IV Year

Steps towards Success

"There is nothing impossible to a willing heart". Alexander the Great

Of all the goals people set in life, two stand out: success in our personal and professional lives. It turns out, these two are interdependent. Personal success supports and reinforces professional success. Professional success reinforces personal success. And together, they reinforce life's most important pursuit — happiness.

Success in general means achieving an aim or attaining one's goal. To some people success is living a comfortable and respectful life, some believe that success is a journey of hard work through endless efforts to achieve the desired goal, while others think having hefty amount of money is a real success. But for me **"success is living your dreams and fulfilling your desire."** In the process of getting success one either achieves it or fails in his efforts. It is said by a great poet that **"the real taste of success can only be understood by a man who have tasted the defeat"**.

Sometimes success also depends on the fate but that's not true in every case. Even if the fate is not favoring us we can lead towards success by putting extra efforts and doing hard work but fate without efforts leads us nowhere. One needs to put himself/herself into his/her goal whole heartedly. Success is also affected by the

priorities in life; some want to grow professionally while the others satisfy themselves by holding the responsibility of family i.e. their personal life and some people want to get the higher rank in society. For all such people success means differently.

The main aim of article is to present the causes of failure and the steps for attaining success in one's life and living the life to its fullest.



"I never see what has been done; I only see what remains to be done". Buddha

We spend years in school learning about the lives of other successful people, but we devote hardly any time at all for studying ourselves. I believe that all of us are unique, have different potential and different qualities but all want to achieve their aim. I once heard that everyone is born unique but most of us die as copies. The major factor leading to failure is, not believing in ourselves and doubting our potential. I believe that we all have the capability to produce gold. We need to find and nurture our potentials to unlock the keys to achievement. We have to motivate ourselves to do what we must do to get on and go on with our lives as clear in Shiv Khera's view that "The best idea will not work until we work upon that idea". We have to pull our socks up and get out of discouraging situations. Life not always present us with an ideal situation in which we pursue our dreams. So in process of getting success we have to do the things that we have never done, to achieve the things that we have never got.!

Vaishnavi Gupta
EX III Year

The (I am) Perfect World

Humans, with each passing day, strive for perfection. Attempts are made to sort out the disorder and smoothen out the irregularities. The aim, it seems, is to create an ideal world where we may get everything served on a platter just the way we want it. Simply put, a world where there would be no conflicts of either thoughts or actions and everything would be synchronized and in perfect harmony with each other. In the world that entwines chaos and flaws within its very fabric, our relentless search for perfection appears as yet another anomaly. A good many of us spend our entire lives on this wild goose chase. To imagine this perfect world is close to impossible; to create one, even more so. The real challenge, though, is to survive in such a world where things are so apt, so precise that any deviation of thought or action will be considered an absurdity. Entropy is the natural tendency of the universe. The human nature is designed in a fashion such that it cannot survive in a state of perfection. It seeks free-will; opportunities to express oneself and hence the freedom to guide one's own life. A life of perfection will be a life that lacks alternatives as well as one without options, owing to the fact that there will only be one perfect way of leading it. There will be neither curiosity nor enjoyment. The pleasures of exploration, the excitement of taking risks and self experimentation will be destroyed. Life is full of challenges and it is these which make life a delight. The endeavour of accomplishing your objectives and the thrill of victory that ensues after overcoming the obstacles on the way, will be lost. What then would be the difference between a human being and a machine? It is our ability to think and our conscience that distinguishes us from the rest of the animal world. Every individual has his own personal choices and tastes and this is what makes one human stand apart from the other. In our blind chase for perfection have we ever paused to reflect on the consequences of a perfect world? It is understandable that we wish to eliminate the disorder that pervades all parts of our life, but do we wish to do it to such an extent so as to kill all the fun in life. Try and reflect on the best moments of your life and you'll realize that the ones that stand out aren't only the ones where you succeeded but those when you did so against all odds. The day you had to chase the last bus home or the one when you got the thrill of having a near death experience; not the boring day to day perfect life. The closer we are to realizing our dream of a 'perfect world' the more absurd appears our quest of seeking it. To use the analogy used by the Joker in the latest installment of the Batman series, we're all dogs chasing cars; we wouldn't know what to do with one, if we caught it.

Jyoti Jha
EX III Year

e-Awartan





Students Achievements:

2016-17					
S. No.	Year	Name of student	Name of event	Award/Prize	Organizer
1	4 th	Harshita Gupta	Swaranjali-17	Student of the Year	IES IPSA
2	2 nd	Sourabh Pal	Cricket	Selected in National Cricket Academy	Gwalior
3	2 nd	Sagar Sharma	E-Cell Representative	Selected in Top 50 Student at IIT	Bombay
4	3 rd	Vinayak Dutt Sharma	Badminton	State level	

List of Students placed (On Campus) in Session 2016-17

S. No.	Enrollment No.	Name of Student	Company Name	Package in Lacs
1	0808EX131012	Harshita Gupta	Triveni Turbine,/Sofcon Pvt Ltd., Bhopal	5.00/ 2.00
2	0808EX131013	Isha Shrivastava	Sofcon Pvt Ltd., Bhopal	2.00
3	0808EX131019	Mayank Kumar Singh	Sofcon Pvt Ltd., Bhopal	2.00
4	0808EX131005	Ankit Shrivastava	T & M company, Indore	2.00

Alumina

SHIRISH BOHARE (Batch 2009)



I joined Capgemini as a result of my college placement after completing my electrical and electronics engineering. In the next 2 years and growing from software engineer to associate consultant – I realized that marketing and branding interest me more. I quit my job to take up an offer from a digital marketing startup – Sokrati in Pune as a business analyst. It turned out to be a turning point and piqued my interest in digital marketing. I have been working with advertising agencies since then (iContract, Grey Digital & FCB Interface) and currently work at Touchstorm as VP & Country Manager – India.

GAURAV AGRAWAL (Batch 2009)



Working as Senior Design Manager (Electrical) in Consulting Engineers Group for Chennai Metro Rail. Also worked for Mumbai Metro and Delhi Metro projects. His job profile includes designing of electrical LT System, BOQ and Tender preparation and construction planning. Currently working as Elect. Manager for National High Speed Rail Corp. (Bullet train), before that worked for various private companies and given my services for Delhi, Jaipur, Mumbai and Chennai Metro Projects.