A.V.C COLLEGE OF ENGINEERING, MANNAMPANDAL, MAYILADUTHURAI

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai

Reaccredited by NAAC with 'B++ (2nd cycle) 'Grade, an ISO 9001:2015 certified institution

Department of Electronics and Communication Engineering

(Accredited by NBA)

"LEMON NEWSLETTER"

Volume: 12 ***Month: March'24*** ***Issue: 02***

Message from Head of the Department

I congratulate the students who have participated in the webinars and workshops and won prizes.

I look forward from the faculties our department to engage themselves in publishing papers in scopus indexed and SCI journals.

I expect from students to do confident learning and score high marks in the forthcoming exams.

Dr. CHITRAVALAVAN

HOD/ECE

INSPIRATIONAL QUOTES

- *Determine goals*
- *Maintain a positive Attitude*
- *Leave personal problems aside*
- *Upgarde your knowledge and skills*
- *Be Passionate*
- *Decrease or eliminate energy drains*
- *Practice self talks*
- *Confront challenges and fears*
- *Meditation*
- *Acknowledge and reward success*

Faculty Corner:

CYBER SECURITY AWARENESS IN SOCIAL MEDIA

- ***Dr.S.K.Rajalakshmi, AP/ECE***

In an era where social media platforms have woven themselves into the fabric of daily life, the importance of cyber security awareness cannot be overstated. This program delves into the multifaceted nature of cyber threats that users face online, including phishing scams, malware, and account hacking, aiming to demystify the complexities of digital security. It stresses the critical need for protecting personal information and sensitive data, guiding participants through the optimization of privacy settings and the safeguarding of digital footprints against unauthorized access.

A significant portion of awareness is dedicated to combating Security threads in Social media, Social engineering attack techniques and role of social media in cyber security and fostering digital literacy.

In an age rife with fake news and misleading content, equipping users with the skills to discern credible information becomes paramount. Furthermore, the seminar explores the psychological tactics employed by cybercriminals in social engineering attacks, offering insights into how emotional manipulation and trust exploitation can lead to security breaches.

Practical advice on maintaining cyber hygiene forms a core component of awareness idea, with recommendations on regular password updates, the use of multi-factor authentication, and an understanding of privacy policies. Through a blend of expert-led lectures, interactive sessions, and analysis of case studies, attendees will emerge with a robust understanding of the cyber security landscape on social media.

The program not only aims to educate but also to empower individuals to become advocates for cyber security awareness within their communities. In doing so, it seeks to foster a digital environment where safety and informed usage are paramount, ensuring that users can navigate the vast interconnected world of social media with confidence and caution.

Cybersecurity Awareness Tips for Students

The path to becoming cyber-aware starts with learning and understanding the basics of cybersecurity. But to truly make a difference, this knowledge must be implemented. Here are some tangible steps you can take as a student to boost your cybersecurity awareness and help create a safer digital environment:

1. Cybersecurity is dynamic, with new threats emerging regularly. Stay updated on the latest cyber threats and security practices by following reliable cybersecurity blogs, podcasts, or news outlets.
2. Use Secure Connections: Whenever possible, avoid using public Wi-Fi for activities that require you to enter personal or sensitive information. If you must use public Wi-Fi, consider using a Virtual Private Network (VPN) to secure your connection.

3. Regularly Update and Back up Your Data: Ensure your devices are constantly updated with the latest software versions, as these often contain security enhancements. Additionally, regularly backing up your data can help mitigate the damage if your device is compromised.
4. Learn About and Implement Privacy Settings: Each social media platform and online service has different privacy settings and options. Take time to understand these settings and customize them according to your comfort level and needs.
5. Participate in Cybersecurity Training: Many schools and online platforms offer cybersecurity training. Participate in these pieces of training to deepen your understanding of cybersecurity and learn practical skills for staying safe online.

Cybersecurity awareness is more than just a nice-to-have skill for students; it's a necessary competence in our increasingly digital world. Recognizing the threats online and understanding how to protect yourself from them is critical for your safety, privacy, and overall digital well-being.

Remember, cybersecurity is not a destination but a journey that involves constant learning, adaptation, and vigilance. As a student navigating the digital landscape, your active participation in cybersecurity is crucial. Your decisions can make a significant difference in creating a safer online environment for yourself and your entire academic community. Your journey toward cybersecurity awareness starts today.

Student Corner :

3D PRINTING METAVERSE

- Subha.S, IV ECE

INTRODUCTION:

The metaverse is a loosely defined term referring to virtual worlds in which users represented by avatars interact,usually in 3D and usually focused on social and economic connection.

HISTORY:

The term metaverse originated in the 1992 science fiction novel Snow Crash as a portmanteau of "meta" and "universe". In Snow Crash, the metaverse is envisioned as a hypothetical iteration of the Internet as a single, universal, and immersive virtual world that is facilitated by the use of virtual reality (VR) and augmented reality (AR) headsets.

The term "metaverse" is often linked to virtual reality technology, and beginning in the early 2020s, with Web3. The term has been used as a buzzword by companiesto exaggerate the development progress of various related technologies and projects for public relations purposes. Information privacy, user addiction, and user safety are concerns within the metaverse, stemming from challenges facing the social media and video game industries as a whole.

IMPLEMENTATION:

Components of metaverse technology have already been developed within online video games.The 2003 virtual world platform Second Life is often described as the first metaverse, as it incorporated many aspects of social media into a persistent three-dimensional world with the user represented as an avatar, but historical claims of metaverse development started soon after the term was coined. Early projects included Active Worlds and The Palace.

In 2017, Microsoft acquired the VR company AltspaceVR,and has since implemented virtual avatars and meetings held in virtual reality into Microsoft Teams.

Some metaverse implementations rely on digital currencies, and often cryptocurrency. Assets within the metaverse are sometimes traded as non-fungible tokens (NFTs) and track ownership using blockchain technology.

Proposed applications for metaverse technology include improving work productivity, interactive learning environments,e-commerce, mass-audience interaction, healthcare and real estate.

TECHNOLOGY:

Hardware:

Access points for the metaverse includes general-purpose computers and smartphones, augmented reality, mixed reality, and virtual reality.

Dependence on VR technology has limited metaverse development and wide-scale adoption. Limitations of portable hardware and the need to balance cost and design have caused a lack of high-quality graphics and mobility. Lightweight wireless headsets have struggled to achieve retina display pixel density needed for visual immersion. Another issue for wide-scale adoption of the technology is cost, with consumer VR headsets ranging of 2022.

Current hardware development is focused on overcoming limitations of VR headsets, sensors, and increasing immersion with haptic technology.

Software:

There has been no wide-scale adoption of a standardized technical specification for metaverse implementations, and existing implementations rely primarily on proprietary technology. Interoperability is a major concern in metaverse development, stemming from concerns about transparency and privacy. There have been several virtual environment standardization projects.

USER SAFETY:

User addiction and problematic social media use is another concern. Internet addiction disorder, social media, and video game addiction can have mental and physical repercussions over a prolonged period of time, such as depression,[anxiety, and various other harms related to having a sedentary lifestyle such as an increased risk for obesity and cardiovascular disease.Experts are also concerned that the metaverse could be used as an 'escape' from reality in a similar fashion to existing internet technologies.

SOCIAL ISSUE :

Metaverse development may magnify the social impacts of online echo chambers and digitally alienating spacesor abuse common social media engagement strategies to manipulate users with biased content. Keza MacDonald of The Guardian criticized the utopianism of technology companies who claim that a metaverse could be a reprieve from worker exploitation, prejudice, and discrimination. MacDonald stated that they would be more positive towards metaverse development if it was not dominated by "companies and disaster capitalists trying to figure out a way to make more money as the real world's resources are dwindling.

LACK OF ADOPTION :

As of 2023, there has been little adoption of Metaverse technology, with Decentraland, a platform claiming to be the metaverse, reporting that it had 8,000 daily users or fewer. Ed Zitron of Business Insider and Marc Olinga of The Street declared the Metaverse a fad that was "dead", having been displaced by artificial intelligence as the current hot new trend in computing.

CONCLUSION:

The scope of Metaverse is expanding day by day as more and more firms are stepping into the sector. Virtual Reality and Augmented Reality allow Metaverse to achieve its full potential. Users can access a virtual world using VR and AR-enabled headgears, smart glasses, and handles.

REALITIES -Interesting

- ***Saravanan.G, IV ECE***

- You are born with 300 bones, by the time you are an adult you will have 206.
- One fourth of the bones in your body are in your feet.
- The average person spends 2 weeks of their lifetime waiting for the light to change from red to green.
- We breathe on average about 5 million times a year
- Months that begin on a Sunday always have a Friday the 13^{th} in them.
- The average lead pencil will write a line about 35 miles long or write approximately 50,000 English words.
- It takes more calories to eat a piece of celery than the celery has in it.
- The present population is expected to rise to 15 Billion by the year 2080.
- The largest recorded snowflake was 15 inches wide and 8 inches thick.
- The tip of a bullwhip moves so fast that the sound it makes is actually a tiny sonic boom.
- The bloodhound is the only animal whose evidence is admissible in court.
- Earth is the only planet not named after a god.
- The world's oldest piece of chewing gum is over 9,000 years old!
- Scientists have tracked butterflies travelling over 3,000 miles.
- The silkworm consumes 86,000 times its own weight in 56 days.
- The elephant is the only mammal that can't jump.

GATE Questions based on Microprocessors & Microcontrollers

- ***Ragul Gandh.R, III ECE***

1. In a microprocessor the clock signal
   - **a.** is always generated internally
   - **b.** is always supplied externally
   - **c.** may be generated internally or supplied externally
   - **d.** is mostly supplied externally
2. Which of the following identifiers is invalid in Pascal?
   - **a.** BETA
   - **b.** MAX 40
   - **c.** 2ND
   - **d.** A MAX
3. In 8085
   - **a.** the upper 8 address bits appear on address bus and lower 8 bits on address data bus
   - **b.** the lower 8 address bits appear on address bus and the upper 8 address bits appear on address data bus
   - **c.** either upper or lower 8 address bits may appear at address bus

d. either upper or lower 8 address bits may appear at address data bus

4**.** The number of select lines in ALU 1C 74181 is

a. 2
b. 4
c. 8
d. 16

5. **Assertion (A):** A RAM with access time of the order of hundreds of nano seconds is suitable for a control memory.
Reason (R): The time taken to execute an operation in a microcomputer is critically dependent on access time of control memory.

a. Both A and R are correct and R is correct explanation of A
b. Both A and R are correct but R is not correct explanation of A
c. A is correct R is wrong
d. A is wrong R is correct

6. The statement ! ($b < 5$) in C means

a. $b = 5$
b. $b > 5$
c. $b >= 5$
d. none of the above

7. Which data transfer scheme is used when large block of data is to be transferred in a computer?

a. DMA
b. Programmed data transfer
c. Either (a) or (b
d. Neither (a) nor (b)

8. In a 3 byte instruction of 8085, the first, second and third byte respectively indicate

a. operation code, low order byte of data/address and high order byte of data / address
b. low order byte of data / address, high order byte of data / address and operation code
c. high order byte of data / address, low order byte of data / address and operation code
d. high order byte of data / address, operation code and low order byte of data / address

9. In 8085 stack pointer is

a. 4 bit register
b. 8 bit register
c. 16 bit register
d. 32 bit register

10. Which of the following is true?

a. During addition if the carry into and carry out of the sign bit do not match then an overflow has occurred
b. During addition if the carry into and carry out of the sign bit don't match then an overflow or underflow has occurred
c. During addition if the carry into and carry out of the sign bit match then an overflow or underflow has occurred

d. During addition if the carry into and carry out of the sign bit match then an overflow has occurred

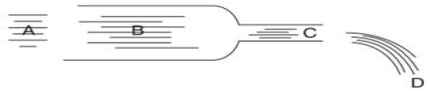
Answers :

1. ***c****. may be generated internally or supplied externally*
2. ***c****. 2ND*
3. ***a****. the upper 8 address bits appear on address bus and lower 8 bits on address data bus*
4. ***b****. 4*
5. ***c.*** *A is correct R is wrong*
6. ***c.*** *b > = 5*
7. ***a****. DMA*
8. ***a.*** *operation code, low order byte of data/address and high order byte of data / address*
9. ***c.*** *16 bit register*
10. ***b.*** *During addition if the carry into and carry out of the sign bit don't match then an overflow or underflow has occurred*

Logical Puzzles

- T.Meenatchi , IV ECE

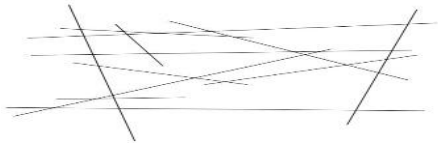
1. A large volume of water is gushing through a pipe which narrows at the outlet. At which point, A, B, C or D will the water flow fastest?



2. Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday
What day comes three days after the day which comes two days after the day which comes immediately after the day which comes two days after Monday?

3. A man has 53 socks in his drawer: 21 identical blue, 15 identical black and 17 identical red. The lights are fused and he is completely in the dark. How many socks must he take out to make 100 per cent certain he has a pair of black socks?

4. How many lines appear below?



5. Gordon is twice as old as Tony was when Gordon was as old as Tony is now. The combined age of Gordon and Tony is 112 years. How old are Gordon and Tony now?

Answers for Logical Puzzles

1. C - The water flows fastest at the narrowest point.
2. Tuesday.
3. 40 socks- If he takes out 38 socks, although it is very unlikely, it is possible they could all be blue and red. To make 100 percent certain that he also has a pair of black socks he must take out a further two socks.
4. 12
5. Gordon 64 and Tony 48 - When Gordon was 48, Tony was 32(ie half the age Gordon is now).

Editors Desk

10 Benefits of waking up early in the morning

- ***Increased productivity.***
- ***Enhanced mental health.***
- ***Regular exercise.***
- ***Improved sleep quality.***
- ***Healthier diet choices.***
- ***Increased focus and concentration.***
- ***Better time management.***
- ***Improved physical fitness.***

Send your suggestions to:

Dr.K.R.Vinothini, AP/ECE –Editor / ***LEMON NEWSLETTER***
lemonece2013@gmail.com

Student Editors :

1. M.Yogeshwaran, IV ECE
2. S.Ashika, IV ECE
3. B.Arooran, III ECE
4. S.Abirami, III ECE

Department Vision

To create globally competent engineers in Electronics and Communication Engineering to meet the industrial progress for betterment of the society

Department Mission

- To create an academic ambience for quality education in the field of Electronics and Communication Engineering
- To make the best use of modern tools and software for teaching and research activities
- To promote industry-institution interaction for skill-based learning of students from rural society
- To inculcate moral and ethical values with a sense of professionalism.

PROGRAMME EDUCATIONAL OBJECTIVES (PEO's):

1. To provide the students with a strong foundation in the required sciences in order to pursue studies in Electronics and Communication Engineering.
2. To gain adequate knowledge to become good professional in electronic and communication engineering associated industries, higher education and research.
3. To develop attitude in lifelong learning, applying and adapting new ideas and technologies as their field evolve
4. To prepare students to critically analyze existing literature in an area of specialization and ethically develop innovative and research oriented methodologies to solve the problems identified.
5. To inculcate in the students a professional and ethical

attitude and an ability to visualize the engineering issues in a broader social context.

PROGRAMME OUTCOMES:

Engineering Graduates will be able to:

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

- PSO1: Design, develop and analyze electronic systems through application of relevant electronics, mathematics and engineering principles
- PSO2: Design, develop and analyze communication systems through application of fundamentals from communication principles, signal processing, and RF System Design & Electromagnetics.
- PSO3: Adapt to emerging electronics and communication technologies and develop innovative solutions for existing and newer problems