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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

SRI VENKATESWARA COLLEGE OF ENGINEERING , TIRUPATI

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DIGITAL FOOTPRINT

.What is Digital footprint ?

A digital footprint – sometimes called a digital shadow or an electronic footprint – refers to the trail of data you leave when using the internet. It includes websites you visit, emails you send, and information you submit online. A digital footprint can be used to track a person's online activities and devices. Internet users create their digital footprint either actively or passively. Whenever you use the internet, you leave behind a trail of information known as your digital footprint. A digital footprint grows in many ways – for example, posting on social media, subscribing to a newsletter, leaving an online review, or shopping online.

Sometimes, it's not always obvious that you are contributing to your digital footprint.

For example, websites can track your activity by installing cookies on your device, and apps can collate your data without you knowing it. Once you allow an organization to access your information, they could sell or share your data with third parties. Worse still, your personal information could be compromised as part of a data breach.

You often hear the terms 'active' and 'passive' in relation to digital footprints:

Active digital footprints

An active digital footprint is where the user has deliberately shared information about themselves – for example, through posting or participating on social networking sites or online forums. If a user is logged into a website through a registered username or profile, any posts they make form part of their active digital footprint. Other activities that contribute to active digital footprints include

completing an online form – such as subscribing to a newsletter – or agreeing to accept cookies on your browser.

Passive digital footprints

A passive digital footprint is created when information is collected about

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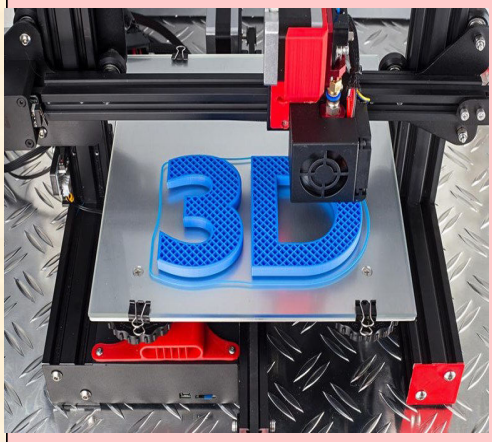
3D PRINTING

What is 3D Printing ?

Digital fabrication technology, also referred to as 3D printing or additive manufacturing, creates physical objects from a geometrical representation by successive addition of materials. 3D printing technology is a fast-emerging technology. Nowadays, 3D Printing is widely used in the world. 3D printing technol-



ogy increasingly used for the mass customization, production of any types of open source designs in the field of agriculture, in healthcare, automotive industry, locomotive industry and aviation industries. 3D printing technology can print an object layer by layer deposition of material directly from a computer aided design

(CAD) model. This paper presents the overview of the types of 3D printing technologies, the application of 3D printing technology and lastly, the materials used for 3D printing technology in manufacturing industry.

3D Printing Technologies

Sintering is a technology where the material is heated, but not to the point of melting, to create high resolution items. Metal powder is used for direct metal

laser sintering while thermoplastic powders are used for selective lasers interring. Melting methods of 3D printing include powder bed fusion, electron beam melting and direct energy deposition, these use lasers, electric arcs or electron beams to print objects by melting the materials together at high temperatures. Stereo lithography utilises photo polymerization to create parts. This technology uses the correct light source to interact with the material in a selective manner to cure and solidify a cross section of the object in thin layers.

Types of 3D Printing :

Binder Jetting,Direct Energy Deposition,Material Extrusion,Material Jetting,Powder Bed Fusion,Sheet Lamination,VAT Polymerization .3D printing, also known as additive manufacturing, processes have been categorized into seven groups by ISO/ASTM 52900 additive manufacturing general principles - terminology. All forms of 3D printing fall into one of the following types:

Advantages of 3D Printing :

Bespoke, cost-effective creation of complex geometries: Affordable start-up costs: Completely customizable: Ideal for rapid prototyping: Allows for the creation

of parts with specific properties: This technology allows for the easy creation of bespoke geometric parts where added complexity comes at no extra cost. In some instances, 3D printing is cheaper than subtractive production methods as no extra material is used. Since no moulds are required, the costs associated with this manufacturing process are relatively low. The cost of a part

is directly related to the amount of material used, the time taken to build the part and any post processing that may be required. Because the process is based upon computer aided designs (CAD), any product alterations are

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DRONES

How Drones work ?

Also known as unmanned aircraft, drones are already breaking barriers in the way companies do business. Huge corporations like Amazon and Google are testing ways to deliver packages with drones. Facebook is using drones to provide Internet connections in remote locations. An unmanned aerial vehicle system has two parts, the drone itself and the control system. The nose of the unmanned aerial vehicle is where all the sensors and navigational systems are present. The rest of the body is full of drone technology systems since there is no space required to accommodate humans. The engineering materials used to build the drone are highly complex composites designed to absorb vibration, which decreases the sound produced. These materials are very lightweight.

How Drone Technology Is Changing Industries :

Agriculture: The Environmental Protection Agency already utilizes drones technology to manage livestock and survey crops. In the future farmers and ranchers could use unmanned aircraft to

strategically monitor and spray their crops.

Conservation: Unmanned aircraft are being used to monitor endangered species and map the changes in various ecosystems around the globe. As drone technology advances, the use and impact of unmanned aircraft in conservation efforts will expand.

Delivery/fulfillment: Anything the postman can carry can also be delivered by drone. Food, prescriptions, that last-minute birthday gift for your dad—in the near future, there will be big changes in the way packages arrive to our doors. Drones are becoming commonplace in both the commercial and non-profits sectors. In the near future, their use will be even more widespread. Here are some of the many ways unmanned aircraft can revolutionize how we get things done. It's easy to see why drone degree programs, like Cal U's two-year associate's degree, are more relevant than ever.

Disaster mitigation and relief: Drones can go places that humans can't access, so they are an ideal solution for dangerous search and rescue efforts, as well as for delivering emergency supplies to remote locations and disaster areas.

Logistics: Heavy-duty drones can replace trucks for inventory management and moving goods between warehouses. This is likely to decrease the number of semis you see on the road.

Filmmaking and photography: Low-budget filmmakers are already using drones to capture aerial shots and Hollywood will soon be hiring full crews of drones Unmanned aircraft are also gaining ground with photojournalists who want to capture breaking news from above.

ISPs: Big tech companies like Facebook and Google are experimenting with solar-powered drone technology to beam the Internet to remote locals. This could transform connectivity as we know it.

Miami, police forces have already applied for permits to use

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CYBER SECURITY AND DATA PRIVACY

Cyber Security:

Cybersecurity, or information security, refers to the measures taken to protect a computer or computer system against unauthorized access from a hacker. A robust cybersecurity policy protects secure, critical or sensitive data and prevents it from falling in to the hands of malicious third parties. The most common forms of cyber attacks are phishing,

spear phishing and injecting malware code into a computer-system.

Data Privacy:

Varonis defines data privacy as a type of "information security that deals with the proper handling of data concerning consent, notice, sensitivity and regulatory concerns." On its most basic level, data privacy is a consumer's understanding of their rights as to how their personal information is collected, used, stored and shared. The use of personal information must be explained to consumers in a simple and transparent manner and in most cases, consumers must give their consent before their personal information is provided.

Protection From a Cyber Attack:

Keeping Data Safe: Because many data breaches happen because of employee errors, staff should only have access to the information vital to their particular role within the company. Additionally, consider records retention programs that require employees to purge files both on their computers and any hard copies they keep (according to the program), destroying the information in the proper manner. Old data should be properly archived or deleted based on local and federal laws, and company policies. A data breach can result in litigation.

Update Security Software: Companies should utilize firewalls, anti-virus software, and anti-spyware programs to help ensure sensitive data cannot be easily accessed by hackers. These security programs also require regular updates to keep them free from vulnerabilities, so make sure to check any software vendors' websites to learn about upcoming security patches and other updates.

Employee Training: All employees should be trained on the

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ABOUT DEPARTMENT

Vision of the Department

To produce globally competent, dynamic and multi talented young leaders with skill & knowledge in Computer science and Engineering to cater the contemporary demands of the software industry, thereby making them industry ready while at the Institution and also to pursue higher education imbibing holistic approach.

Mission of the Department

M1: To impart high quality technical education in Computer Science and Engineering by providing well equipped infrastructure, core values.

M2: Advanced research and technical consultancy services with qualified and senior faculty.

M3: To prepare the learners professionally deft and intellectually adept possessing excellent skill, knowledge and behavior.

M4: To inculcate the leadership capabilities in learners to face the dynamic and challenging global of the Computer Science and Engineering field.

Programme Outcomes (POs)

PO1 : Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: 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.

PO3: 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.

PO4: 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.

PO5: 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.

PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities rele-

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Programme Outcomes (POs)

PO7: 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

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: 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.

PO11: 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.

PO12: 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 : Problem Solving Skills: Ability to design and develop computing tools with moderate complexity in the areas pertaining to database, data analytics, networking, web and app design, IoT and information security with integration.

PSO2: Professional Skills: Ability to apply standard practices and methods in software project management and software development using suitable programming environments to deliver quality product to the industry

Programme Educational Objectives (PEOs)

PEO1: To impart foundations of applied science and engineering subjects in order to apply, analyze and solve problems in computational aspects.

PEO2: To inculcate ability in creativity and design of computer support systems and impart knowledge and skills to analyze, design, test and implement various software applications.

PEO3: To strengthen higher education, research, prepare for globally acclaimed competitions; imbibe in civic-leadership qualities and to trigger social, ethical, holistic and behavioral approach