


3.3.3 Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during year

| Sl. No. | Name of the teacher                 | Title of the book/chapters published   | Title of the paper   | Title of the proceedings of the conference   | Name of the conference  | National / International | Year | ISBN/ISSN number of the proceeding | Affiliating Institute at the time of publication | Name of the publisher |
|---------|-------------------------------------|--|--|--|---|--------------------------|------|------------------------------------|--|-----------------------|
| 1       | Sureshkumar.P                       | Electrical & Electronics in Automotive System  |  |  |   |                          | 2021 | 9789354580642                      | JCTCET   | ThePencilapp.com      |
| 2       | Sureshkumar.P                       | Automobile Virtualization Guidelines   |  |  |   |                          | 2021 | 9781638730422                      | JCTCET   | Notion press          |
| 3       | Sureshkumar.P                       | Retail, Service & Repair Automotive Training   |  |  |   |                          | 2021 | 9781638734987                      | JCTCET   | Notion press          |
| 4       | Sureshkumar.P                       | Mentorship for Students  |  |  |   |                          | 2021 | 9789354586729                      | JCTCET   | ThePencilapp.com      |
| 5       | Dr. K Geetha                        | 5 <sup>th</sup> International Conference on Inventive Systems and Control ISISC 2021 |  | 5 <sup>th</sup> International Conference on Inventive Systems and Control ISISC 2021     | 5 <sup>th</sup> International Conference on Inventive Systems and Control ISISC 2021        | International            | 2021 | 2367-3370                          | JCTCET   | Springer              |
| 6       | Dr. K Geetha                        | 3rd International Conference on Trends in Material Science and Inventive Materials   |  | 3rd International Conference on Trends in Material Science and Inventive Materials       | 3rd International Conference on Trends in Material Science and Inventive Materials          | International            | 2021 | 1757-899X                          | JCTCET   | IOP                   |
| 7       | Dr. K Geetha                        | International Conference on Artificial Intelligence and Smart Systems                |  | International Conference on Artificial Intelligence and Smart Systems                    | International Conference on Artificial Intelligence and Smart Systems                       | International            | 2021 | 978-1-7281-9537-7                  | JCTCET   | IEEE                  |
| 8       | Thahseen Thahir and Vedha Vinodha D |  | Advances in VLSI design and its various Fabrication Technologies | International Conference Recent Trends in Communication and Embedded System Technologies | International Conference on Recent Trends in Communication and Embedded System Technologies | International            | 2021 | ISBN:978-93-5526-077-2             | JCTCET   |                       |

  
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Recent years have witnessed the evolution of Artificial Intelligence [AI] techniques like deep learning, machine learning, pattern recognition, Natural language processing [NLP], and computer vision and their revolutionary applications in the emerging smart city and industrial automation applications. In this scenario, AI provides smart and efficient tools for smart energy systems to perform smart electricity generation, emergency response, and delivery. The main goal of the International Conference on Artificial intelligence and Smart Systems [ICAIS 2021] organized by JCT College of Engineering and Technology, Coimbatore, Tamilnadu, India on 25-27, March 2021 is to propose, share and exchange innovative Artificial Intelligence [AI] solutions to enhance the efficiency, stability, robustness, and security of smart energy systems.

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- Capsule Networks
- Smart Agent-based Systems
- Machine Learning
- Fuzzy based Intelligent Systems
- Evolutionary Computing
- Expert Systems
- Human-Computer Interaction Technologies
- Cognitive Intelligence
- Artificial Immune Systems
- Cyber-Physical Systems
- Artificial Life
- Knowledge-based Systems
- Artificial Neural Networks
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- Smart Energy Optimization Techniques
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## ABOUT THE CONFERENCE

In recent years, smart systems and control science are entering into a new technology phase. This initiative reflects new challenges and stimulates the need of rapid research awareness on realizing various smart systems and control strategies into existence. The 5th International Conference on Inventive Systems and Control [ICISC 2021] which is to be held on 7-8 January 2021 at JCT College of Engineering and Technology, Coimbatore, India will initiate an open forum for academicians, researchers and industrialists where the recent advances in control science and systems engineering can be extensively discussed, shared and examined. ICISC 2021 is solely dedicated to publish high-quality and transferable innovations across all the aspects in the fields of inventive smart systems and control science with an extensive interest in the areas of formulation, implementation and analysis in the fields of control and information science.

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- Intelligent Autonomous Systems
- Robotics

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- Fuzzy based Control
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- Embedded Control
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- Intelligent Vehicle Control
- Motor Control and Power Systems
- Sustainable Control Theories and Models
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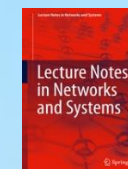
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## ABOUT THE CONFERENCE

International Conference on Trends in Material Science and Inventive Materials (ICTMIM 2020) is being organized on 9-10, April 2020 by JCT College of Engineering and Technology, Coimbatore, Tamil Nadu, India. The goal of this conference is to provide a platform for engineers and academicians all over the world to promote, share, and discuss various new issues and developments in different areas of Material Science and Inventive Materials. All manuscripts must be prepared in English and are subject to a rigorous and fair peer-review process.

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- Heat Treatment for Welded Steel

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- Iron & Steel Classes and Standards
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# **ADVANCES IN VLSI DESIGN AND ITS VARIOUS FABRICATION TECHNOLOGIES**

**Thahseen Thahir and D. Vedha Vinodha**

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## **Abstract**

Three-dimensional (3D) integration is an emerging technology that is expected to lead to an industry paradigm shift due to its tremendous benefits. In the advanced technology scaling, IC chips have remained essentially two-dimensional (2D). In contrast with conventional 2D circuits, 3D integrated circuits offer a new paradigm that builds multiple tiers of active devices stacked above each other. A 3D circuit is the stacking of regular 2D circuits. Three dimensional integration for possible alternatives that provide better or equal performance with lower cost. In this paper we will discuss the opportunities, and possible solutions for 3D integrated devices.

Recent advances in process technology have brought 3D technology to the point where it is feasible and practical, and it has raised widespread interest in the chip industry. Three-dimensional (3D) integration is an emerging technology that can form highly integrated systems by vertically stacking and connecting various materials, technologies and functional components together. The potential benefits of 3D integration can vary depending on approach; they include multifunctionality, increased performance, reduced power, small form factor, reduced packaging, increased yield and reliability, flexible heterogeneous integration and reduced overall costs. For example, a small form factor is achieved by stacking active component layers on top of one another in any 3D approach.

One of several promising solutions being explored is the 3D integration and packaging technology (also known as vertical integration), in which multiple layers of active devices are stacked with vertical interconnections between the layers to form 3D integrated circuits (ICs). Even in the absence of continued device scaling, 3D ICs provide potential performance advances, since each transistor in a 3D IC can access a greater number of nearest neighbors, and each circuit functional block has higher bandwidth. Other benefits of 3D ICs include improved packing density, noise immunity, and improved total power due to reduced wire length/lower capacitance, superior. 3D technology enables the memory arrays to be placed above or under logic circuitry, resulting in an increased bandwidth. In particular, as the amount of on-chip memory increases,



the latency of the path from logic to memory becomes a limiting factor in the logic-memory system. The ability to stack logic and memory has been demonstrated. In addition, one can determine system performance as a function of the number of device layers. Maximum performance depends on power dissipation constraints. Simple models of device and system dependencies have been developed, and optimizations have been performed. These layering models ignore the impact of blockage due to signals passing through a device layer.

**Keywords:** Three-dimensional integrated circuit (3D IC), 3D Integration, 3D