INSTITUTE OF RENEWABLE ENERGY TECHNOLOGY & MANAGEMENT
PT. RAVISHANKAR SHUKLA UNIVERSITY
G.E. ROAD, AMANAKA, RAIPUR (C.G.)
Recognized by UGC, AICTE & Skill Council for Green Jobs
Website: www.prsu.ac.in E-Mail ID: renewable.prsu@gmail.com

Report: FDP on "Start-up in VLSI Design, Embedded System, and Computational Intelligence"

Name of Program Type	Faculty Development Program
Name of Program Theme	Startup in VLSI Design, Embedded System, and Computational Intelligence
Objective	To provide faculty members with an in-depth understanding of VLSI design, embedded systems, and computational intelligence
Benefit	Enhancing the knowledge base of faculty members in VLSI and embedded systems, Providing insights into the latest developments and industrial expectations in semiconductor technology, Equipping participants with hands-on experience in designing and prototyping embedded solutions
Duration of Activity	6 Days (17-02-25 to 22-02-25)
Mode of Event	Offline
No. of Participants	54
No. of Resource Person	12
Expenditure Amount	3 Lakhs

Development Program (FDP) on Startup in VLSI Design, Embedded System, and Computational Intelligence was jointly organized by IIC PRSU, Raipur and Indian Society for VLSI Education, Ranchi in collaboration with the Electronics and ICT Academy, (Phase II) Pandit Dwarka Prasad Mishra Indian Institute of Information Technology, Design and Manufacturing, Jabalpur, as part of its broader vision to strengthen India's semiconductor ecosystem and technological advancements. The Government of India has been actively promoting semiconductor manufacturing, VLSI design, and computational intelligence through initiatives such as the India Semiconductor Mission (ISM). The FDP aligns with this mission by providing faculty members and researchers with the necessary knowledge and skills to contribute to India's growing semiconductor industry. The key objectives of the FDP were to provide faculty members with an in-depth understanding of VLSI design, embedded systems, and computational intelligence, to promote research and startup initiatives in the field of semiconductor technology, and to encourage the development of innovative solutions using embedded and computational intelligence methodologies. The inaugural session of the program was held at the Seminar Hall of the School of Studies in Electronics and Photonics at PRSU, with Dr. Vijay Nath, Associate Professor at BIT Mesra, as the Chief Guest and Prof. Sachchidanand Shukla, the Vice Chancellor of PRSU, presiding over the ceremony. The event was coordinated by Dr. Kavita Thakur, President IIC PRSU. The inauguration included a ceremonial worship of Goddess Saraswati, followed by the university's anthem. Dr. Vijay Nath delivered an inspiring speech, discussing the importance and the role of VLSI technology in modern advancements. He also outlined the goals and framework of the upcoming six-day program, which will give participants the opportunity to gain in-depth knowledge. Vice Chancellor Prof. Shukla addressed the participants, motivating them to focus on continuous effort and hard work. Dr. Kavita Thakur emphasized the importance of the event,

INSTITUTE OF RENEWABLE ENERGY TECHNOLOGY & MANAGEMENT
PT. RAVISHANKAR SHUKLA UNIVERSITY
G.E. ROAD, AMANAKA, RAIPUR (C.G.)
Recognized by UGC, AICTE & Skill Council for Green Jobs
Website: www.prsu.ac.in E-Mail ID: renewable.prsu@gmail.com

---

sharing the pride of PRSU being chosen as the center for the FDP.

This six-day FDP aims to enhance the knowledge and skills of the participants in VLSI design, embedded systems, and computational intelligence. Resource persons have been invited from many distinguished academic institutions such as IITDM, Jabalpur, NIT Raipur, Soa University, Bhubaneswar, Odisha, NIT Jamshedpur etc. In this six day FDP following session have been taken by delegate resource persons: Day 1:

On Day 1 of the Faculty Development Program, the first session was led by Dr. Vijay Nath, who introduced the fundamental principles of semiconductor technology. Dr. Nath elaborated on the utility, characteristics, and significance of semiconductors in modern electronic devices. He inspired the participants by sharing the story of Professor Morris, who made significant contributions to the invention of the semiconductor chip. Dr. Nath also provided an insightful overview of the efforts being made under the Indian government's "Mission Semiconductor" initiative, which aims to establish a semiconductor city in Dholera, thereby making India self-reliant in this sector. He discussed the challenges faced in semiconductor chip design within India and highlighted possible solutions to overcome these obstacles. Furthermore, he encouraged the participants to strive for success based on their skills and talents. In the second session, Dr. Nath introduced Programmable Logic Devices (PLDs) and explained the process of coding design for various circuits. He emphasized important considerations when designing circuits and stressed the significance of attention to detail in the design process. Overall, Day 1 was a knowledge-enhancing and motivational experience for the participants. They gained valuable insights into the latest developments and technologies in the fields of electronics and photonics.

Day 2: On Day 2 of the Faculty Development Program, two insightful sessions were conducted. In the first session, Dr. Vijay Nath presented a detailed lecture on arithmetic circuit design using Verilog, covering both theoretical concepts and practical applications. Key topics included designing arithmetic circuits like adders, subtractors, and multipliers using Verilog, arithmetic assignment statements, multiplication algorithms, array multipliers for unsigned numbers, BCD addition, and arithmetic comparator circuits. The session emphasized Verilog syntax, operator precedence, and the trade-offs between speed, area, and power consumption. The interactive nature of the session allowed participants to deepen their understanding through practical examples. In the second session, Dr. Nath led a hands-on practice on programmable systems and Xilinx software, guiding participants through the design and implementation process. The session provided valuable skills in using Xilinx software for programmable system design, with a focus on step-by-step coding practices. Both sessions were highly engaging and informative, offering participants critical insights into arithmetic circuit design and programmable systems.

Day 3: On Day 3 of the six-day Faculty Development Program (FDP) at PRSU, Dr. B. Khalilu Rahman delivered an extensive lecture on VLSI (Very Large Scale Integration) design and FPGA (Field-Programmable Gate Array), blending theoretical knowledge with practical experience. Dr. Rahman emphasized the importance of HDL (Hardware Description Language), particularly focusing on Verilog, and explained its different coding styles, including gate-level, dataflow, and behavioral modeling. He provided a detailed explanation of each step in the VLSI design process and clarified the differences between the front-end (design and simulation) and back-end (implementation and fabrication) stages, highlighting the challenges in each. A brief history of VLSI design was also discussed to help participants understand its evolution. The session's key focus was FPGA, where Dr. Rahman elaborated on its architecture, functionality, and applications, explaining how FPGAs differ from other integrated circuits and their advantages for rapid prototyping and development. He demonstrated an FPGA board, explaining its components and capabilities, and clarified the concept of RTL (Register Transfer Level) systems essential for FPGA-based digital circuit design. He also provided a step-by-step guide on setting up an FPGA, creating designs, and generating bit files, giving participants hands-on experience with FPGA.

INSTITUTE OF RENEWABLE ENERGY TECHNOLOGY & MANAGEMENT
PT. RAVISHANKAR SHUKLA UNIVERSITY
G.E. ROAD, AMANAKA, RAIPUR (C.G.)
Recognized by UGC, AICTE & Skill Council for Green Jobs
Website: www.prsu.ac.in E-Mail ID: renewable.prsu@gmail.com

Technology. The hands-on session was particularly valuable, allowing participants to apply their theoretical knowledge to practical projects. Dr. Rahman's lecture proved to be highly beneficial for engineers and researchers interested in VLSI design and FPGA, offering both theoretical insights and practical skills essential for working in electronics and computer engineering. Day 4: On Day 4 of the six-day Faculty Development Program (FDP) at PRSU, Dr. Honey Durga Prasad Tiwari delivered a lecture on chip design and startup opportunities, covering the importance of chip design, the global semiconductor industry landscape, opportunities in India, government schemes, and challenges. He discussed the evolution of chip design, the semiconductor industry, market size, major companies, VLSI and chip manufacturing processes, and India's role in the industry. Dr. Tiwari emphasized the significance of India's Semiconductor Mission, government support, and business opportunities for chip design, as well as challenges faced by semiconductor startups. He highlighted technical aspects of chip design, including various design methodologies (ASIC, FPGA, SoC), VLSI design processes, EDA tools, and industry applications. He discussed the challenges in chip design, including production costs, complexity, and thermal issues, and the

latest trends such as AI chips, neuromorphic computing, and RISC-V. Dr. Tiwari also explored the emerging Indian startups in the field, their need for government support and strategic partnerships, and provided case studies of successful startups like SparkLabs and Sankhya Labs. He explained the types of semiconductor startups, funding sources, incubation support, and how to build a strong team. Further, he discussed alternative business models (fabless, IP licensing, chiplet), patent protection, and the importance of selecting manufacturing partners. Dr. Tiwari also provided insights into establishing fabless semiconductor startups in India, choosing markets and applications (AI, IoT, Automotive, 5G), and leveraging government incentives. In the final session, Dr. R. Priyadarshi and the technical team conducted a practical session on sequential circuit design, SPICE optimization, and simulation, which was beneficial for the participants, especially the students.

Day 5: On Day 5 of the ongoing six-day Faculty Development Program at Pandit Ravishankar Shukla University, the first session featured a lecture by Dr. Pankaj Sharma on Advanced Devices Fabrication Technology, where each topic was explained in great detail. In the second session, Dr. Priyadarshi conducted a practical session along with his technical team, focusing on sequential circuit design, and optimization with SPICE, and simulation, which proved beneficial for the students. The second lecture of the day was delivered by Dr. D.K. Yadav, who emphasized the importance of e-banking security and elaborated on various security measures. Dr. Yadav discussed the increasing cyber threats such as phishing, ransomware, and malware, and advocated for a multi-layered approach to ensure e-banking security, including strong passwords, data encryption, secure servers, anti-phishing measures, transaction monitoring, and regular security updates. He also provided tips to protect against cyber threats, such as using antivirus software, keeping the operating system updated, and being cautious of phishing emails. Dr. Yadav recommended using personal computers and secure internet connections for e-banking, avoiding public computers and Wi-Fi hotspots, and typing the bank's website URL directly into the browser.

This lecture raised awareness about e-banking security and provided crucial information to protect users from cyber threats.

Day 6: On the 6th day of the ongoing Faculty Development Program at Pandit Ravishankar Shukla University, the first session featured a detailed and dedicated lecture by Professor B. Acharya on "FPGA and Cryptography." In this session, the functioning and applications of FPGA (Field Programmable Gate Array) were explored, particularly its role in advancing cryptography. Professor Acharya explained how FPGA is playing a crucial role in computer networks and cybersecurity, highlighting how this technological approach is enhancing cryptographic methods. The second session saw Dr. Pankaj Sharma delivering an inspiring lecture on "Internet of Things (IoT) and Nanotechnology." Dr. Sharma focused on the development of IoT, its applications, and the synergies with nanotechnology. He discussed how the combination of these technologies could bring revolutionary changes in future smart cities, healthcare, and other industries. The lectures sparked active participation from the audience, with teachers and researchers engaging in deep discussions through questions and ideas.

INSTITUTE OF RENEWABLE ENERGY TECHNOLOGY & MANAGEMENT
PT. RAVISHANKAR SHUKLA UNIVERSITY
G.E. ROAD, AMANAKA, RAIPUR (C.G.)
Recognized by UGC, AICTE & Skill Council for Green Jobs
Website: www.prsu.ac.in E-Mail ID: renewable.prsu@gmail.com

The valedictory session of the Faculty Development Program on Day 6 was held with great enthusiasm and grandeur. Dr. Pankaj Sharma was the chief guest, and the event was organized by Professor Namita Brahme. During the ceremony, Dr. Sharma addressed all the participants, emphasizing the importance of continuous development for teachers and their contributions to emerging technological fields. He highlighted that such programs significantly contribute to innovation and improvement in the education sector.

Dr. Sharma also presented certificates to all the participants, symbolizing recognition for their contributions and involvement in the program. Professor Namita Brahme expressed her gratitude to all the participants and organizers for the successful execution of the event and assured that similar programs would be conducted in the future in an even more effective manner. After the ceremony, participants expressed their satisfaction and happiness, and all attendees appreciated the success of the program.

The six days Faculty Development Program on Start-up in VLSI Design, Embedded System, and Computational Intelligence was a resounding success. It provided a platform for learning, collaboration, and innovation in the fast-evolving field of semiconductor technology. The event concluded with positive feedback from participants, emphasizing the need for more such initiatives to bridge the gap between academia, research, and industry, in alignment with India's Semiconductor Mission and vision for a self-sustaining electronics ecosystem.

INSTITUTE OF RENEWABLE ENERGY TECHNOLOGY & MANAGEMENT
PT. RAVISHANKAR SHUKLA UNIVERSITY
G.E. ROAD, AMANAKA, RAIPUR (C.G.)
Recognized by UGC, AICTE & Skill Council for Green Jobs
Website: www.prsu.ac.in E-Mail ID: renewable.prsu@gmail.com

INSTITUTE OF RENEWABLE ENERGY TECHNOLOGY & MANAGEMENT
PT. RAVISHANKAR SHUKLA UNIVERSITY
G.E. ROAD, AMANAKA, RAIPUR (C.G.)
Recognized by UGC, AICTE & Skill Council for Green Jobs
Website: www.prsu.ac.in E-Mail ID: renewable.prsu@gmail.com

पत्रिका

CINEWEB & CELEBS छाया के कवि कलश हैं आयुर्वेद के...

#TechnologyTime रांची के प्रोफेसर की पत्रिका से खास बातचीत

चिप निर्माण में आत्मनिर्भर होगा भारत

पत्रिका इंटरव्यू

20/02/2025 | Raipur City | Page : 15
Source : https://epaper.patrika.com/

फैकल्टी विकास कार्यक्रम में डॉ. नाथ ने बताई सेमीकंडक्टर की उपयोगिता

रायपुर। पं. रविशंकर शुक्ल विश्वविद्यालय में छह दिवसीय फैकल्टी विकास कार्यक्रम का आयोजन किया जा रहा है। इसके तहत वीएलएसआई डिजाइन, एम्बेडेड सिस्टम और कम्प्यूटेशनल इंटेलिजेंस में स्टार्टअप विषय पर यह कार्यक्रम है। 22 फरवरी तक यह कार्यक्रम रविवि में होगा। आज उद्घाटन सत्र में बीआईटी मेसरा के एसोसिएट प्रोफेसर डॉ. विजय नाथ मुख्य अतिथि थे। कुलपति प्रो. सच्चिदानंद शुक्ल ने कार्यक्रम की अध्यक्षता की। कार्यक्रम के पहले सत्र में, डॉ. वी. नाथ ने सेमीकंडक्टर प्रौद्योगिकी के मूलभूत सिद्धांतों का परिचय दिया। उन्होंने सेमीकंडक्टर की उपयोगिता, विशेषताओं और आधुनिक इलेक्ट्रॉनिक उपकरणों में इसके महत्व पर विस्तृत चर्चा की। इस मौके पर रविवि के कुलसचिव डॉ. शैलेंद्र कुमार पटेल उपस्थित रहे। इस कार्यक्रम का समन्वय डॉ. कविता ठाकुर ने किया।

'साइबर सुरक्षा में एफपीजीए महत्वपूर्ण'

पं. रविशंकर विश्वविद्यालय में आयोजित फैकल्टी डवलपमेंट प्रोग्राम में शामिल प्रतिभागी व अतिथि वक्ता।● विश्वविद्यालय

नईदुनिया प्रतिनिधि, रायपुर : कम्प्यूटर नेटवर्क और साइबर सुरक्षा में सेमीकंडक्टर उपकरण 'फील्ड प्रोग्रामेबल गेट ऐरे' (एफपीजीए) महत्वपूर्ण भूमिका निभा रहा है। तकनीकी दृष्टिकोण से क्रिप्टोग्राफी में भी सुधार ला रहा है। ये बात प्रोफेसर बी. आचार्य ने कही। पं. रविशंकर विश्वविद्यालय (पीआरएसयू) में चल रहे छह दिवसीय फैकल्टी डेवलपमेंट प्रोग्राम के अंतिम दिन एफपीजीए व क्रिप्टोग्राफी विषय पर व्याख्यान दिया। उन्होंने इसकी कार्यप्रणाली,

उपयोग और इसके द्वारा क्रिप्टोग्राफी में किए जा रहे नवाचारों पर विस्तार से चर्चा की। दूसरे सत्र में डा. पंकज शर्मा ने इंटरनेट आफ थिंग्स (आइओटी) और नैनोटेक्नोलाजी विषय पर व्याख्यान दिया। उन्होंने आइओटी के विकास, इसके अनुप्रयोग और नैनोटेक्नोलाजी के साथ इसके संबंधों पर विस्तार से चर्चा की। उन्होंने कहा कि इन तकनीकों का संयोजन भविष्य के स्मार्ट शहरों, चिकित्सा और अन्य उद्योगों में क्रांतिकारी बदलाव ला सकता है। व्याख्यान के माध्यम से

शिक्षकों और शोधकर्ताओं को इन आधुनिक तकनीकी क्षेत्रों में कार्य करने के लिए प्रेरित किया। उन्होंने प्रतिभागियों को संबोधित करते हुए शिक्षकों के निरंतर विकास और नए तकनीकी क्षेत्रों में उनके योगदान के महत्व को रेखांकित किया। उन्होंने यह भी कहा कि इस प्रकार के कार्यक्रमों से शिक्षा के क्षेत्र में नवाचार और सुधार की दिशा में बड़ी मदद मिलती है। कार्यक्रम में हिस्सा ले रहे सभी प्रतिभागियों को प्रमाण पत्र भी दिए गए। इस मौके पर प्रोफेसर नमिता ब्रम्हे मौजूद रहीं।

#CampusEvent रविवि में चल रहे फैकल्टी प्रोग्राम में वक्ता ने कहा

सार्वजनिक वाई-फाई से न करें ई-बैंकिंग का उपयोग

रायपुर। रविवि में चल रहे 6 दिवसीय फैकल्टी डेवलपमेंट प्रोग्राम के पांचवे दिन पंकज शर्मा ने व्याख्यान दिया। टापिक के एडवांस विडियोलाइज फेब्रिकेशन टेक्नोलाजी। दूसरा व्याख्यान प्रियदर्शी का था, उन्होंने एक प्रेक्टिकल सेशन करवाया। जिसमें प्रियदर्शी और सर्किट डिजाइन, स्थापना के साथ आर्टिफिशियल टीम द्वारा सीक्वेंसिंग विषय पर बताया गया। दूसरे सत्र में

डाके यादव ने व्याख्यान में ई-बैंकिंग सुरक्षा के महत्व पर जोर दिया और साइबर सुरक्षा उपायों के बारे में विस्तार से बताया। उन्होंने श्रोताओं को साइबर सुरक्षा खतरों से अवगत किया। उन्होंने यह भी कहा कि साइबर हमलों के खतरे लगातार बढ़ रहे हैं, और इसलिए, सिस्टम और आर्टिफिशियल को साइबर सुरक्षा खतरों के प्रति जागरूक रहने की आवश्यकता है। दूसरे सत्र में

ऐसे रहें सचेत

आवश्यक कदम उठाने के लिए प्रोत्साहित किया। उन्होंने कहा कि साइबर हमलों के खतरे लगातार बढ़ रहे हैं, और उनसे बचने के लिए आवश्यक कदम उठाने की आवश्यकता।