

Report of IIC -23.12.2020

The Institution's Innovation Council and The Department of Physics, St.Mary's College (Autonomous), Thoothukudi organized an innovative talk on the topic, '**DESIGN THINKING**' on 23rd December 2020 through Google platform at 3pm. Dr. K. Mohanraj, Assistant Professor and IIC President of Manonmaniam Sundaranar University, Tirunelveli was the guest speaker. Sr. Jessie Fernando, Head of the Department of Physics, welcomed the speaker and Ms. Shakthi of II B.Sc Physics proposed the vote of thanks. Around 91 students, both UG and PG and 10 faculty members were benefited by this programme. The Students came to know about Design thinking, which is an iterative process which seeks to understand the user, the challenges faced by the user and the ways to redefine the problem. It provided a solution based approach to solve problems. It paved way for the students to think and work on the basis of hands-on-methods .Students also came to know the latest advancements in the generation of Solar Cells, Single Junction Silicon cells, Thin Film Cells and Multi Junction Cells and their efficiencies. The programme was well organized by the IIC members Dr. M. Sheeba, Ms. P. Dhanalakshmi, Ms. P. Padmavathi, Ms. A. Nirmala Shirley and IIC student members Ms. S. Triffilla Missier, Ms. Jaisala and Ms. Rohini under the guidance of Dr.Sr.C.Shibana Deputy principal and IIC Vice President.



What is Design Thinking?

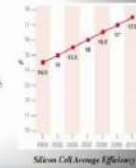
- Design Thinking is an iterative process in which we seek to
 - understand the user
 - challenge assumptions
 - redefine problems
- identify alternative strategies and solutions that might not be instantly apparent with our initial level of understanding.
- At the same time, Design Thinking provides a solution-based approach to solving problems. It is a way of thinking and working as well as a collection of hands-on methods.

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Generation of Solar Cell

First Generation - Single Junction Silicon Cells

- Limit efficiency 31%
- Single crystal silicon - 16-19% efficiency
- Multi-crystal silicon - 14-15% efficiency
- Best efficiency by Sun Power 22%



- ✓ 87.4% of 2007 Production
- ✓ 45.2% Single Crystal Si
- ✓ 42.2% Multi-crystal Si

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Second Generation - Thin Film Cells

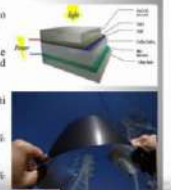
➤ New materials and processes to improve efficiency and reduce cost.

➤ Thin film cells use about 1% of the expensive semiconductors compared to First Generation cells.

➤ Single Crystal Si 4.7% & multi Crystal Si 0.5% of 2007 Production

➤ Single Crystal Si has 8-11% efficiency.

➤ Multi Crystal Si has 7-11% efficiency.



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Other interesting (?) ideas

Would you invest your money?

- Solar Panel on a car roof

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Technical Innovation and Entrepreneurship

Learn how to start with an idea and take it through to a finished, marketable product

- Idea generation / Feasibility
- Intellectual property
- Business plan
- Financing
- Marketing
- patents

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Comparison of Types of solar cell

Material	Efficiency (%)
Monocrystalline silicon	14-17
Polycrystalline silicon	13-15
Amorphous silicon	5-7

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