Nano-Machines Lab: Designing and Manufacture

Content:

Day 1: Session 1: 1 1⁄2 hours:
Talk: Concepts like ideality, most useful function(s), harmful effects, convolution, need for invention, s-shaped curve in innovative design. Trimming, miniaturization, etc. while retaining functional performance of technical systems (products and processes). Examples are shown from all areas of engineering.

Day 1: Session 2: 1⁄2 hour :
Talk and demonstrate working in Nano-machine lab How to build in Nano-Lab, conceptual and embodiment design, use of tools, safety precautions, use of creative innovation, psychological inertias.

Day 1: Session 3: 1⁄2 hour:
students form groups & get kits (3 in a group). Small break included.

Day 1: Session 4: 2 hours:
Design & prototyping of Nano-LED lighted preset-torque generating screwdriver for night repair.

Day 1 : Session 5: 3 hours:
design & build portable, low-cost, folding 2D microscope with nano-LED for detecting malaria and other diseases through blood samples (project with support of its inventor, Dr Tunde, PhD(MIT), Co-founder, ImpactLabs MIT, MIT)

Total 7 and 1⁄2 hours

Kit includes:

Nano-LED (0.8mm) daylight prewired, SMD LED (less than 0.5mm), mini batteries of 3V each, printed sheet for microscope, a tiny borosilicate (glass) ball to act as lens, nano-LED circuit, switch, drill bit, hardeners, hot melt adhesive.

The Faculty:

Saurabh Kwatra, is currently Expert, Smart Growth Operational Programme , European Commission (2014-20), National Centre for Research and Development ,Warszawa, **Ministry of Science & Higher Education, Poland**
Facilitator, MIT ImpactLabs Summer Workshop, MIT.

Workshop coordinated by: Palak Surana : Energy Access Practitioner Network, UN Foundation

Note: Techfest, IIT Bombay Certificates to all participants (only if participant attends all the sessions).

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