Akshay Khandelwal

CONTACT Information Junior Undergraduate

Department of Electrical Engineering

Indian Institute of Technology, Kanpur

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RESEARCH INTERESTS

EDUCATION

Semiconductor devices, Organic Solar Cells, Optical electronics, Digital electronics

Indian Institute of Technology, Kanpur

Bachelor of Technology in **Electrical Engineering**• Cumulative Performance Index (CPI) - 7.8/10

Arcadia Academy, Kota

All India Senior Secondary Certificate Examination - Class XII

• Scored 86.2% in AISSCE XII

Tagore Public School, Jaipur

All India Senior Secondary Certificate Examination - Class X

• Cumulative Grade Point Average (CGPA) - 8.8/10

2010

2012

2013 - present

SCHOLASTIC ACHIEVEMENTS

- Achieved All India Rank 552 in JEE-Advanced, 2013 among 150,000 students
- Attained All India Rank 6704 in JEE-Mains, 2013 among 1,300,000 students

TECHNICAL SKILLS

- Programming Languages: C, C++,html,css,MySQL,Python
- Tools: LATEX, Matlab, Octave, MicroCap, LT spice
- Design Softwares: AUTOCAD, 3dsMAX
- Operating Systems: Windows, Linux

PROJECTS

Control of Brushless DC Motor

May'15-June'15

Mentor: Dr. Ramprasad Potluri, Dept. of Electrical Engineering, IIT Kanpur

- Controlled BLDC motor with speed disturbance observer to make zero turning radius wheels
- Performed tests to determine current Torque relationship in given BLDC motor

Mechanical Coupon making Machine (Manufacturing project)

Jan'15-Apr'15

Project Instructor: Dr. V.K. Jain, Dept. of Mechanical Engineering, IIT Kanpur

- Designed CAD model
- Fabrication done using milling, turning, drilling, gear cutting and welding manufacturing processes

Oil Rig Model (Manufacturing project)

Aug'14-Nov'14

Project Instructor: Dr. Shashank Shekhar, Dept. of Material Science and Engineering, IIT Kanpur

- Designed CAD model of Oil rig depicting Tower, drill, Pipe lines etc.
- Fabricated model using casting, welding, brazing and metal sheet forming manufacturing processes

Relevant Courses

• Mathematics

Analytical calculus, Linear Algebra and ODE, Complex analysis, Partial differential equations,
Probability and Statistics

• Optical Electronics

- LEDs, semiconductor lasers, modulation of laser sources. Avalanche and PIN photodetectors and their characteristics. Solar cells. Optical fibers and their characteristics. Integrated optics. Fiber optic communication systems, system design consideration.
- Semiconductor Physics

Basics of semiconductor physics, p-n junction diodes, Metal-semiconductor contacts, BJTs, MOS capacitors, MOSFETs, optoelectronic devices, Advanced semiconductor devices: MESFETs, HBTs, HEMTs, MODFETs.

• Power Electronics

Controlled rectifiers: full/half controlled converters, dual converters, sequence control. AC regulator circuits, reactive power compensators. dc-dc converters, switching dc power supplies.
Inverters: square wave and pwm types, filters, inverters for induction heating and UPS

• Principles of Communication

Information measures. Source coding. ISI channel equalization, partial response signalling.
PLLs and FM threshold extension.

• Control Systems Analysis

 Linear feedback control systems, frequency and time domain analysis, I/O relationships, transfer function, perfor-mance analysis, Routh-Hurwitz and Nyquist stability criteria, Bode diagrams

• Digital Electronics

Analysis of digital logic families: TTL, MOS, CMOS Inverters; interfacing between logic families; various logic functions and their implementation; Bistable circuits- R-S, J-K, D and PLA; Design of synchronous sequential circuits

• Electromagnetic Theory

Basics of Static electric and magnetic fields, Energy in fields, Maxwells equations, plane EM waves, Propagation in free space and in matter, Reflection and refraction, Guided EM waves, Transmission lines, Radiation of EM waves.

Positions of

Junior Executive Professional affairs

Feb'14-Mar'14

- Responsibility
- Ensured smooth conduct of more than 40 events and exhibition.
- Managed Hospitality of guests from Embassy of Israel.

EXTRA-CURRICULAR ACTIVITIES

- Actively involved in Institute Cricket Team, IIT Kanpur.
- Participation in various intra institute competitions of robotics.