PANIPAT INSTITUTE OF ENGINEERING & TECHNOLOGY
Department of Electronics & Communication Engineering

LESSON PLAN

Subject Name: - VLSI Technology **Subject Code: - ECP-5A**
Year: - 3rd **Semester:- 5th**

Lecture No	Unit No	Topic	References
L-1	I	Introduction to subject, Course Outcomes, Pre-requisites, Assessments	Sze SM. VLSI technology. McGraw-hill; 1988.
L-2	I	Crystal structure of Silicon, Polycrystalline and single crystal-Comparison	Sze SM. VLSI technology. McGraw-hill; 1988.
L-3	I	Orientation of crystals and significance in IC fabrication	Sze SM. VLSI technology. McGraw-hill; 1988.
L-4	I	BJTs, MOSFETs and FinFETs	Sze SM. VLSI technology. McGraw-hill; 1988.
L-5	I	Clean Room Concept	Sze SM. VLSI technology. McGraw-hill; 1988.
L-6	I	Si or Ge, significance in Fabrication of ICs	Sze SM. VLSI technology. McGraw-hill; 1988.
L-7	I	Growth of single crystal Si	Sze SM. VLSI technology. McGraw-hill; 1988.
L-8	II	Epitaxial growth process	Sze SM. VLSI technology. McGraw-hill; 1988.

L-9	II	VPE and MBE techniques	Sze SM. VLSI technology. McGraw-hill; 1988.
L-10	II	Comparison of epitaxial growth processes, important parameters	Sze SM. VLSI technology. McGraw-hill; 1988.
L-11	I	Fabrication process of p-n diode	Sze SM. VLSI technology. McGraw-hill; 1988.
L-12	I	Oxidation – Growth mechanism	Sze SM. VLSI technology. McGraw-hill; 1988.
L-13	I	Kinetics of oxidation	Sze SM. VLSI technology. McGraw-hill; 1988.
L-14	I	oxidation techniques and systems	Sze SM. VLSI technology. McGraw-hill; 1988.
L-15	I	Oxide properties	Sze SM. VLSI technology. McGraw-hill; 1988.
L-16	I	oxide induced defects	Sze SM. VLSI technology. McGraw-hill; 1988.
L-17	I	charactrisation of oxide films,	Sze SM. VLSI technology. McGraw-hill; 1988.
L-18	I	Use of thermal oxide and CVD oxide	Sze SM. VLSI technology. McGraw-hill; 1988.
L-19	I	growth and properties of dry and wet oxide	Sze SM. VLSI technology. McGraw-hill; 1988.
L-20	I	dopant distribution	Sze SM. VLSI technology. McGraw-hill; 1988.
L-21	I	oxide quality	Sze SM. VLSI technology. McGraw-hill; 1988.
L-22	-	Isolation Techniques with reference to VLSI circuits	Sze SM. VLSI technology. McGraw-hill; 1988.
L-23	II	Solid State Diffusion – Fick's equation	Sze SM. VLSI technology. McGraw-hill; 1988.

L-24	II	atomic diffusion mechanisms	Sze SM. VLSI technology. McGraw-hill; 1988.
L-25	II	measurement techniques	Sze SM. VLSI technology. McGraw-hill; 1988.
L-26	II	diffusion in polysilicon and silicon di-oxide diffusion systems	Sze SM. VLSI technology. McGraw-hill; 1988.
L-27	II	Ion implantation – Range theory	Sze SM. VLSI technology. McGraw-hill; 1988.
L-28	II	Equipments	Sze SM. VLSI technology. McGraw-hill; 1988.
L-29	II	annealing	Sze SM. VLSI technology. McGraw-hill; 1988.
L-30	II	shallow junction, high energy implementation	Sze SM. VLSI technology. McGraw-hill; 1988.
L-31	III	Mask making, E-beam writing, Lithography – Optical lithography	Sze SM. VLSI technology. McGraw-hill; 1988.
L-32	III	Revision for Sessional	Sze SM. VLSI technology. McGraw-hill; 1988.
L-33	III	Discussion on Sessional, Identifying students for remedial class	Sze SM. VLSI technology. McGraw-hill; 1988.
L-34	III	Lift-off technique	Sze SM. VLSI technology. McGraw-hill; 1988.
L-35	III	Some Advanced lithographic techniques	Sze SM. VLSI technology. McGraw-hill; 1988.
L-36	IV	Metallisation - Different types of metallisation	Sze SM. VLSI technology. McGraw-hill; 1988.
L-37	IV	Physical Vapour Deposition – APCVD	Sze SM. VLSI technology. McGraw-hill; 1988.

L-38	IV	Plasma CVD	Sze SM. VLSI technology. McGraw-hill; 1988.
L-39	IV	MOCVD	Sze SM. VLSI technology. McGraw-hill; 1988.
L-40	IV	Fabrication process of Schottky diodes	Sze SM. VLSI technology. McGraw-hill; 1988.
L-41	IV	VLSI Process integration	Sze SM. VLSI technology. McGraw-hill; 1988.
L-42	IV	NMOS fabrication process	Sze SM. VLSI technology. McGraw-hill; 1988.
L-43	IV	VLSI Packaging Considerations	Sze SM. VLSI technology. McGraw-hill; 1988.

Text Books:

1) Sze SM. VLSI technology. McGraw-hill; 1988.

Reference Books:

1). S. K. Gandhi, VLSI Fabrication Principles, Wiley, 2nd edition
2). Sedra & Smith, Microelectronic Circuits 2004, Oxford, 5th edition