



KTH – Kista Graduate School

## Epitaxy of compound semiconductors

Course number: 2B5801;

Credit points: 8

### Topics (subjected to minor modifications)

No.	Title	Demo/Homework	Literature
1	Introduction-Device driven need and challenges of epitaxy, gas kinetics	H	Handouts, Smith - ch. 1 & 2
2	Deposition	H	Smith - ch.5, Stringfellow ch. 3
3	Epitaxy and Chemical Vapour Deposition	H	Smith - ch. 6, 7
4	Thermodynamics	H	Stringfellow - ch. 2
5	Metal Organic Vapour Phase Epitaxy – Principles and process design	H, D	Stringfellow - ch. 1, 6, 7
6	Metal organic source molecules, Kinetics	H	Stringfellow - ch. 4, 5
7	Liquid Phase Epitaxy, Chloride Based Epitaxy, Selective Area Growth, Heteroepitaxy	H, D	Handouts
8	Molecular Beam Epitaxy	H	Handouts
9	Epitaxy and applications of nanostructures	H	Handouts
10	Epitaxy and applications of GaN, AlGaIn etc.	H, D	Handouts
11	Waste management in epitaxy	H	Handouts
12	Epitaxy in an industrial environment	H	Handouts
13	Epitaxy and applications of specific materials including antimonides, dilute nitrides and tellurides,	H	Stringfellow Ch. 8, Handouts
14	SiC – Materials, epitaxy and applications	H, D	Handouts
15	Si-Ge – Materials, and epitaxy and applications	H, D	Handouts
16	Laser ablation techniques for oxide deposition	H, D	Handouts

- Lecture Room: HMA conference room, Electrum, Kista
- Demonstrations will be arranged in the Electum Laboratories
- Course Literature:
  - 1) Donald L.Smith, Thin Film Deposition, Principles and practice, McGraw-Hill, NY, 1995
  - 2) Gerald B.Stringfellow, Organometallic Vapor-Phase Epitaxy, Theory and Practice, 2<sup>nd</sup> edition, Academic Presss, San Diego, 1999.
  - 3) Handouts
- Examination: Home assignments and lab demonstration
- For further information please contact: Sebastian Lourdudoss, Dept. of Microelectronics and Information Technology, KTH, Tel. 08-7521161, e-mail: [doss@imit.kth.se](mailto:doss@imit.kth.se)
- Registration Date for registration will be announced later. Please contact: Ms. Rose Marie Lövenstig, Dept. of Microelectronics and Information Technology, KTH, Tel. 08-7521122, e-mail: [rml@imit.kth.se](mailto:rml@imit.kth.se)