

## II. Schedule of lectures and experiments

### Week 1 -- Lectures Series

June 26 - 30

	Monday	Tuesday	Wednesday	Thursday	Friday
3:00 pm - 6:05 pm	Overview	Overview	Theory (Expts 1, 2)	Theory (Expts 3, 4)	Theory (Expts 5, 6)

#### Monday, June 26<sup>th</sup>:

##### Poster session

3:00 p.m. Poster Session (ongoing throughout the whole today's session)

##### Opening Session for the General Public

3:00 p.m. Presentation Professor Andres La Rosa

3:05 p.m. Lecture: Interdisciplinary collaboration in the development of Nanotechnologies.  
Professor John Carruthers

3:20 p.m. Break (Poster Session continues)

##### Technical Plenary Session

3:30 p.m. Course Overview Professor Andres La Rosa

3:40 p.m. Opening Plenary Technical Session  
Professor John Carruthers

5:00 p.m. Organization of lab sessions groups

#### Tuesday, June 27<sup>th</sup>: Technical Plenary Sessions

3:00-3:55 p.m. The Bottom-up Approach to Nanotechnology

Lecturer: Professor Carl Wamser [wamserc@pdx.edu](mailto:wamserc@pdx.edu)

4:05-5:10 p.m. The Top-down Approach to Nanotechnology

Lecturer: Professor Shalini Prasad [prasads@cecs.pdx.edu](mailto:prasads@cecs.pdx.edu)

#### Wednesday, June 28<sup>th</sup>: Theory

3:00-4:25 p.m. Topic #2: Quantized Conductance in Nanocontacts

Lecturer: Professor Raj Solanki [solanki@csee.ogi.edu](mailto:solanki@csee.ogi.edu)

4:40-6:05 p.m. Topic #1: Nanoparticulate Dye-Sensitized Solar Cells

Lecturer: Professor Carl Wamser [wamserc@pdx.edu](mailto:wamserc@pdx.edu)

#### Thursday, June 29<sup>th</sup>: Theory

3:00-4:25 p.m. Topic #3: Photolithography Software

Lecturer: Professor Shankar Rananavare [rananavares@pdx.edu](mailto:rananavares@pdx.edu)

4:40-6:05 p.m. Topic #4: Focused Ion Beam

Lecturer: Professor Erik Sanchez [esanchez@pdx.edu](mailto:esanchez@pdx.edu)

#### Friday, June 30<sup>th</sup>: Theory

3:00-4:25 p.m. Topic #5: Soft Lithography: Micromolding and Nanopatterning

Lecturer: Ravi K. Reddy [ravikiran.k.reddy@gmail.com](mailto:ravikiran.k.reddy@gmail.com)

4:40-6:05 p.m. Topic #9: Characterization using Atomic Force Microscopy

Lecturer: Professor Hui She [hshe@pdx.edu](mailto:hshe@pdx.edu)

### Week 2 -- Lectures Series

July 5 - 7

	Monday	Tuesday	Wednesday	Thursday	Friday
3:00 pm - 5:00 pm	Holiday	Holiday	Theory (Expts 7, 8)	Theory (Expts 9, 10)	Theory (Expts 11, 12)

### Wednesday, July 5<sup>th</sup>: Theory

3:00-4:25 p.m. Topic #7: Soft Lithography: Polymer Nanostructures by Self Assembly

Lecturer: Professor Mingdi Yan [yanm@pdx.edu](mailto:yanm@pdx.edu)

4:40-6:05 p.m. Topic #8: Electrical Characterization of Bio/nanomaterials

Lecturer: Vijay S. R. Kovvuri [kovvuri@pdx.edu](mailto:kovvuri@pdx.edu)

### Thursday, July 6<sup>th</sup>: Theory

3:00-4:25 p.m. Topic #10: Scanning Electron Microscopy

Lecturer: Professor Chunfei Lee [chunfei@pdx.edu](mailto:chunfei@pdx.edu)

4:40-6:05 p.m. Topic #11: Transmission Electron Microscopy and Nanometrology

Lecturer: Professor Peter Moeck [pmoeck@pdx.edu](mailto:pmoeck@pdx.edu)

### Friday, July 7<sup>th</sup>: Theory

3:00-4:25 p.m. Topic #12: X-Ray Diffraction: Nanoparticle Size by Debye Scherrer Method

Lecturer: Professor Shankar Rananavare [rananavares@pdx.edu](mailto:rananavares@pdx.edu)

4:40-6:05 p.m. Topic #6: Electron Beam Evaporator

Lecturer: Professor James Morris [jmorris@cecs.pdx.edu](mailto:jmorris@cecs.pdx.edu)

## General lab schedule template for all weeks

### Experiment #1

	Monday	Tuesday	Wednesday	Thursday	Friday
11 am -2 pm	Sec 01	Sec 03	Sec 05	Sec 07	Sec 09
4 pm -7 pm	Sec 02	Sec 04	Sec 06	Sec 08	Sec 10

### Experiment #2

	Monday	Tuesday	Wednesday	Thursday	Friday
11 am -2 pm	Sec 07	Sec 09	Sec 01	Sec 03	Sec 05
4 pm -7 pm	Sec 08	Sec 10	Sec 02	Sec 04	Sec 06

### Week 3 -- July 10 - 14

Experiments 1 Keith James [kjames@pdx.edu](mailto:kjames@pdx.edu)

Experiments 2 Ravi K. Reddy [ravikiran.k.reddy@gmail.com](mailto:ravikiran.k.reddy@gmail.com)

### Week 4 -- July 17 – 21

Experiments 3 Allen [allc@pdx.edu](mailto:allc@pdx.edu)

Experiments 4 Derek Nowak [dbn@pdx.edu](mailto:dbn@pdx.edu)

### Week 5 -- July 24 – 28

Experiments 5 Lorie Noice [noice@pdx.edu](mailto:noice@pdx.edu)

Experiments 6 Deepak Vedha [deepakvedha@gmail.com](mailto:deepakvedha@gmail.com)

**Week 6 -- July 31 - Aug 4**

Experiments 7 Kai Wang [kaiw@pdx.edu](mailto:kaiw@pdx.edu)  
Experiments 8 Vijay S. R. Kovvuri [kovvuri@pdx.edu](mailto:kovvuri@pdx.edu)

**Week 7 -- Aug 7 – 11**

Experiments 9 Poornima Raju, [nrudra@pdx.edu](mailto:nrudra@pdx.edu)  
Experiments 10 K. Asante [aduasante@yahoo.com](mailto:aduasante@yahoo.com)

**Week 8 -- Aug 14 – 18**

Experiments 11 Girish Upreti [girish@pdx.edu](mailto:girish@pdx.edu)  
Experiments 12 Joo [jchan@pdx.edu](mailto:jchan@pdx.edu)

### **III. List of Experiments**

(descriptions of each experiment are on the following pages.)

- Experiment #1 Nanoparticulate Dye-Sensitized Solar Cells**  
K. James Room: SB1-326
- Experiment #2 Soft Lithography: Micromolding and Nanopatterning**  
Ravi K. Reddy Room: SB2-405
- Experiment #3 Photolithography Software**  
Allen Chaparadza and Vindhya Kunduru. Room: SB1-308
- Experiment #4 Focused Ion Beam**  
D. Nowak Room: SB2-449
- Experiment #5 Quantized Conductance in Nanocontacts**  
Coordinator: Raj Solanki Experiment: L. Noice Room: SB1-201
- Experiment #6 Electron Beam Evaporator**  
Coordinator: James Morris Experiment: Deepak Vedha Room: SB2-405
- Experiment #7 Soft Lithography: Polymer Nanostructures by Self Assembly**  
Coordinator: Mingdi Yan Experiment: Kai Wang Room: SB1-224
- Experiment #8 Electrical Characterization of Bio/nanomaterials**  
Coordinator: Shalini Prasad Experiment: Vijay S. R. Kovvuri Room: FAB 25-02
- Experiment #9 Characterization using Atomic Force Microscopy**  
Coordinator: James Morris Experiment: Poornima Raju Room: FAB25-03
- Experiment #10 Scanning Electron Microscopy**  
Coordinator: Chunfei Li Experiment: K. Asante Room: SB1-38
- Experiment #11 Transmission Electron Microscopy and Nanometrology**  
Coordinator: Peter Moeck Experiment: Girish Upreti Room: SB1-19

**Experiment #12 X-Ray Diffraction: Nanoparticle Size by Debye-Scherrer Method**  
Coordinator: Shankar Ranavare Experiment: Joo Room: **TBA**