

Unit 9 - Week 7 - Introduction to Micro-Systems Fabrication Technology

Course outline

How does an NPTEL online course work?

Week 0

Week 1 - Basics of Manufacturing Processes

Week 2 - Introduction to casting process

Week 3 - Gating Systems and Rate of solidification

Week 4 - Estimation of solidification time with different conditions and Riser design

Week 5 - Machining Processes

Week 6 - Cutting tool life estimation

Week 7 - Introduction to Micro-Systems Fabrication Technology

Introduction to Advanced Machining Processes

Classification of Machining Processes

Silicon growth & Crystallography

Micro Fabrication Technology

Photolithography

Soft Lithography

Introduction to Wet Etching Techniques

Introduction to Dry Etching Techniques

Quiz : Assignment 7

Assignment 7 solution

Manufacturing Process Technology I and II: Feedback For Week 07

Week 8 - Abrasive water jet machining and Ultrasonic Machining

Week 9 - Introduction to Electrochemical Machining

Week 10 - Electro-discharge Machining Process

Week 11 - Laser Beam and Electron Beam Machining Processes

Week 12 - Metal Forming Processes

Text Transcripts

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Assignment 7

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-03-18, 23:59 IST.

Assignment 7

1) Precision machining caters what limit of machining accuracy? 1 point

- 1-10 μm
 0.1-1 μm
 10-100 μm
 1-10 nm

No, the answer is incorrect.
Score: 0

Accepted Answers:
0.1-1 μm

2) Ion beam machining can produce a minimum machining accuracy up to ____? 1 point

- 0.1 nm
 1 μm
 1 nm
 100 μm

No, the answer is incorrect.
Score: 0

Accepted Answers:
1 nm

3) Which of the following mechanical abrasion process utilizes loose abrasives? 1 point

- Honing
 Grinding
 Sawing
 Buffing

No, the answer is incorrect.
Score: 0

Accepted Answers:
Buffing

4) Which of the following device is used in AFM? 1 point

- Electronic IC
 Cantilever tip
 DMD mirrors
 Smoothened silicon substrate

No, the answer is incorrect.
Score: 0

Accepted Answers:
Cantilever tip

5) Surface micromachining is: 1 point

- Additive process
 Subtractive process
 Constant volume process
 None of the above.

No, the answer is incorrect.
Score: 0

Accepted Answers:
Additive process

6) Physical dry etching utilize which of the following etchant material? 1 point

- Etchant gases
 Etchant powders
 Ions, electrons or photons
 All of the above.

No, the answer is incorrect.
Score: 0

Accepted Answers:
Ions, electrons or photons

7) Which of the following photoresist presents the feature of dissolving away when directly exposed by the UV light? 1 point

- Negative photoresist
 Positive photoresist
 None of the above shows such characteristics.
 All the photoresists present such behavior.

No, the answer is incorrect.
Score: 0

Accepted Answers:
Positive photoresist

8) The resolution, b of lithography, is given by the formula _____, where λ and s are wavelength and distance between mask and photoresist layer, respectively. 1 point

- $b=0.5\lambda s$
 $b=0.5 (\lambda s)^{1.5}$
 $b=1.5\lambda s$
 $b=1.5 (\lambda s)^{0.5}$

No, the answer is incorrect.
Score: 0

Accepted Answers:
 $b=1.5 (\lambda s)^{0.5}$

9) SU8, negative tone photoresist does not contain which of the following compound? 1 point

- Epoxy resin
 Curing agent
 Cyclopentanone solvent
 Photoacid generator

No, the answer is incorrect.
Score: 0

Accepted Answers:
Curing agent

10) Which of the following scheme is not used for a wafer-level bonding scheme? 1 point

- Field assisted bonding
 Bonding by an intermediate adhesive layer
 Direct bonding by oxygen plasma
 All of the above.

No, the answer is incorrect.
Score: 0

Accepted Answers:
All of the above.