

Lectures for the course: Cloud Computing (IT 60020)

Week 1

Lecture 1 – 09/01/2013

- Introduction to the course
- Evaluation Guidelines
- Term paper and Term project guidelines

Lecture 2 – 10/01/2013

- Evolution of computing paradigms
- Distributed and parallel computing
- Cluster computing

Lecture 3+4 – 11/01/2013

- Case study/ hands on practice
- Overview of IaaS and Introduction to Eucalyptus

Week 2

Lecture 5 – 16/01/2013

- Grid computing
- Utility computing

Lecture 6 – 17/01/2013

- Utility computing
- Cloud computing – NIST definition
- Cloud computing service models

Lecture 7+8 – 18/01/2013

- Case study/ hands on practice
- Architecture of Eucalyptus - Cloud Controller, Cluster Controller, Node Controller, Virtual Networking

Week 3

Lecture 9 – 23/01/2013

- Cloud computing deployment models
- Cost justification for cloud computing as compared to in-house resource building
- Advantages and disadvantages of cloud computing

Week 4

Lecture 10 – 30/01/2013

- Cloud Computing (NIST Model)

Lecture 11 – 31/01/2013

- Clouconomics

Lecture 12 – 01/02/2013

- Case study/ hands on practice
- Installation and Configuration of Eucalyptus Cloud

Week 5

Lecture 13 – 06/02/2013

- Grid vs Cloud
- Role of Open standards

Lecture 14 – 06/02/2013 (Extra)

- Case study/ hands on practice
- CloudSim 3.0

Lecture 15 – 07/02/2013

- Cloud Architecture

Lecture 16 – 08/02/2013

- Case study/ hands on practice
- Installation of Eucalyptus

Week 6

Lecture 17 – 13/02/2013

- Case study/ hands on practice
- Example showing how to create a datacenter with one host and run one cloudlet on it using Clousim

Lecture 18 – 14/02/2013

- Cloud architecture
- Network virtualization

Week 7

Mid sem exam held

Week 8

Lecture 19 – 27/02/2013

- Service oriented architecture

Lecture 20 – 28/02/2013

- Mid sem scripts shown and feedback given

Lecture 21 – 01/03/2013

- Case study/ hands on practice
- Eucalyptus installation

Week 9

Lecture 22 – 06/03/2013

- Introduction to queuing theory
- Random variables and their types
- Various types of distributions

Lecture 23 – 07/03/2013

- Properties of Poisson distribution
- Relation between Poisson and Exponential distribution
- Conditional probability, Independence
- Random processes
- Markov processes
- Markov chains, DTMC and CTMC

Lecture 24 – 08/03/2013

- Quiz held

Week 10

Lecture 25 – 13/03/2013

- Birth death processes
- Generator matrix
- Kendall's notations
- Little's theorem
- M/M/1 queue
- M/M/m queue

Lecture 26 – 14/03/2013

- System virtualization
- Host and native VMM
- Advantages and pitfalls
- Roadmap

Lecture 27 – 15/03/2013

- Case study/ hands on practice
- Quiz scripts shown and feedback given

Lecture 28 – 15/03/2013

- Server consolidation
- Amazon IaaS

Week 11

Lecture 29 – 20/03/2013

- PaaS
- Azure

Lecture 30 – 21/03/2013

- PaaS
- Google App Engine

Lecture 31 – 22/03/2013

- Case study/ hands on practice

Week 12

Lecture 32 – 28/03/2013

- Multi tenancy

Lecture 33 – 29/03/2013

- Case study/ hands on practice

Week 13

Lecture 34 – 03/04/2013

- SLA

Lecture 35 – 04/04/2013

- SLA continued

Lecture 36 – 05/04/2013

- Lab assignment evaluated

Week 14

Lecture 37 – 10/04/2013

- GFS
- BigTable

Lecture 38 – 11/04/2013

- Quiz scripts shown

Lecture 39 – 12/04/2013

- Course wrap up