Nanyang Technological University

HH2017: History of information technology
Semester 1, 2019-20

Final Version

Academic Units: 3
Pre-requisites: None
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Overview

The History of Information Technology surveys the history of computers and other information technologies from the nineteenth century to the present. Content will include nineteenth century “information technologies” such as Babbage’s engines and the telegraph, the invention of the electronic computer, the emergence of networking, the rise of the personal computer, the growth of the World Wide Web, as well as recent trends in computing and information technology such as social networking and cloud computing.

Logistics

This is a lecture & tutorial class. Lectures and tutorials will take place on Monday afternoons. Lectures will be held in LT-17 from 1.30-3.30pm and tutorials slots are designated as 3.30-4.30pm (T1) and 4.30-5.30pm (T2), both to be held in TR+34.

Learning Objectives

- Understand the origins of modern computers;
- Understand the role of information technology in society and its impact on society;
- Theorize the relationship between technology and society;
- Place contemporary developments in information technology in historical context;

Some important things to know for this module:

Readings

All the readings for the class will be placed online on Blackboard/NTU Learn, downloadable for your reading pleasure. Completing the assigned reading for the week before the lecture and tutorial is a minimum expectation for class participation.

There is no textbook for the class. However, if you do want an overview of some of the material in the course, there are several books I would suggest:

• Paul Ceruzzi (2012) *Computing: A Concise History* (MIT Press) [more or less a compressed version of the above]
• Ask me if you want more information / reading on specific topics.

**MCs**
Medical certificates are not a “get out of jail free” card. Missing a tutorial or lecture without an MC will mean an automatic zero for any attendance and participation marks awarded for that week. Presenting an MC allows you the *opportunity* to make up the grade for your missed class, but it does not automatically make up for the missed class. Usually, this means I will ask you to write a 500-word response paper on the readings for that week. The grade on this response paper will make up your attendance and participation grade for that week.

**Academic honesty**
The University rules regarding plagiarism will be strictly enforced in this class. Make yourself familiar with the rules. Even when you are creating a multi-website, you should acknowledge your sources either via links, linked footnotes, or a “sources” page. If in doubt, ask me.

**Practice-based tutorials**
Some of the tutorials in this class (weeks 3, 5, 9, 11, and 13) are designated as “practice-based.” In these tutorials you will have to work “hands-on” with computer hardware or software during tutorials. They are described in more detail in the “week-by-week” section of the syllabus below (see notes marked with “@” symbol). For each of these weeks, you will have to write up a reflection online that will be graded and count as part of your “practice-based” assessment (see “assessment” section below).

**Extensions and late work**
Any late work will lose marks at the rate of 10% of the maximum grade per 24-hour period or part thereof [for example, late 1 hour = 10% penalty, late 26 hours = 20% penalty, late 71 hours = 30% penalty]. Extensions for assignments will be considered on a case-by-case basis in extraordinary circumstances. No extensions will be granted within one week of the deadline.

**Assessment**
This class has no final examination. The assessment tasks aim to develop your skills as historians and to ask you to read and think critically about history. The assessment structure will reward those students who work consistently over the course of the semester.

**Practice-based assessment (20%)**:
This component will be made up of online activities and exercises based on the practice-based tutorials. These will be completed online and graded on a week-to-week basis. No particular exercise from any week will count for more than 5% of your total grade. See activities marked with an “@” symbol below.
Presentation (25%):

Pick a specific computer or device, tells us about its history and how it works. A list of devices will be provided (look for the “#” symbol in the week-by-week description of the class below). You will work in groups to present your findings during lecture time. The size of the groups will be determined in the first or second week of class based on the overall class size.

Midterm Test (25%)

This will be held during class time in Week 7. It will be based on “identities” from the readings and lecture materials (you will be asked to identify and comment on a person, place, or thing).

Test date: Monday 23rd September [in class]

Multi-Media Report (30%)

This will be due at the end of the semester. It will comprise a research report based on the historical development of a particular technology. The content will must be diachronic (that is, track development over time). You will present your findings as a multi-media website – it should include not only texts, but videos, pictures, infographics, etc. The textual parts of the report will also be submitted to Turn-It-In.

Due date: Friday 15th November, 5pm (online and text via Turn-It-In).

Module Outline and Readings

Week 1 (August 12th): No class meeting, Hari Raya Haji

- Watch introductory lecture online via LAMS sequence (“Content → Assignments → week 1”) and complete the mini-quiz.

@Practice-based: you will be required to watch the video and complete a short introductory quiz for the course. This will count towards your practicum grade. (Deadline: 5pm Friday 23rd August)

Week 2 (August 19th): Computing in the nineteenth century

- Charles Babbage (1835) On the Economy of Machinery and Manufactures. [Preface, Introduction, Chapters 18 and 19]

Week 3 (August 26th): When computers were humans

Practice-based: Calculating with adding machines (Deadline: 5pm Friday 30th August).

#Differential Analyzer (Vannevar Bush); #Hollerith Machine

Week 4 (September 2nd): World War II

• Aiken Computer Laboratory (1985) A Manual Operation for the Automatic Sequence Controlled Calculator, Charles Babbage Institute reprint series for the History of Computing, vol. 8 (Cambridge, MA: MIT Press): 1-52 [you don’t need to read this in detail and understand it; just try to use it to get a sense of how this computer might have worked]


#Colossus; #Z1; #Atanasoff-Berry; #Harvard Mark I; #ENIAC; #Manchester “baby”

Week 5 (September 9th): Brains and mainframes


Practice-based: Psychotherapy with Eliza (Deadline: 5pm Friday 13th September)

#EDVAC; #UNIVAC; #IBM 701; #Ferranti Mark I; #Whirlwind

Week 6 (September 16th): The Transistor and the Integrated Circuit


#Busicom calculator; #Intel 4004

Week 7 (September 23rd): Midterm Test

We will have the midterm test during the first hour of the lecture time. No tutorials this week.

Mid-Semester Break

Week 8 (October 7th): ARPA and the First Networks

#DEC-PDP-1; #LINC; #IBM 360

**Week 9 (October 14th): Personal Computers**

• Walter Isaacson (2011) *Steve Jobs* (Simon & Schuster) [Chapter 2-5, pp. 21-70]

@Practice-based: Working with the Altair 8800 simulator (Deadline: 5pm Friday 18th October)

#Apple I; #Apple II; #Commodore PET; #Commodore 64; #Commodore Amiga

**Week 10 (October 21st): Users**


#Modem; #Fibre Optics; #Usenet; #Telenet; #NSFNET; #Compuserve

**Week 11 (October 28th): No class meeting due to Deepavali holiday**

@Practice-based: Playing games on early PCs [online only; no lecture or tutorial]

**Week 12 (November 4th): World Wide Web**


#NEXT; #Mozilla; #Netspace; #HTML
Week 13 (November 11th): IT hardware in China: outsourcing and its consequences


@Practice-based: Copycat electronics (Deadline: 5pm Friday 15th November)

#dual-sim mobile phone; #Ren Zhengfei; #BYD; #QQ;