PRINCIPLES OF ENGINEERING

CLASS 1 – INTRODUCTION

COURSE POLICIES

COURSE POLICIES

- Respect and Attendance

Use of Mobile devices. You cannot record audio or video at the class. If you want to take a picture ask first

Attendance call. Time.

Respect your colleagues! All the time, specially during master lectures and oral presentations

COURSE POLICIES

- Zero tolerance of cheating and plagiarism
  - Plagiarism of any activity or exam
  - Copy / Wrong use of references
  - False medical excuses
- What can happen?
  - Activity grade: zero
  - Report

COURSE POLICIES

- Zero tolerance of cheating and plagiarism

Example: Workshop by 3

A group of 3 people develop a workshop together and get a 4.5 grade. However, one of the exercises was copied from another group's workshop.

Result?

All students from both groups (6!) get a grade of 0.0.

COURSE POLICIES

- Communication

  By e-mail or WA (quick questions). Avoid LinkedIN, IG or any other media

  Activities have to be uploaded in AVATA (Homework link before 23:59 PM)

  If you sent the activity late, you will be punished (at least -0.5)

- Tutoring

  Specific questions! Mail or WhatsApp** (Time).

  Monday 2 – 4 PM Wednesday 4 – 6 PM

  Class tutor: to be confirmed

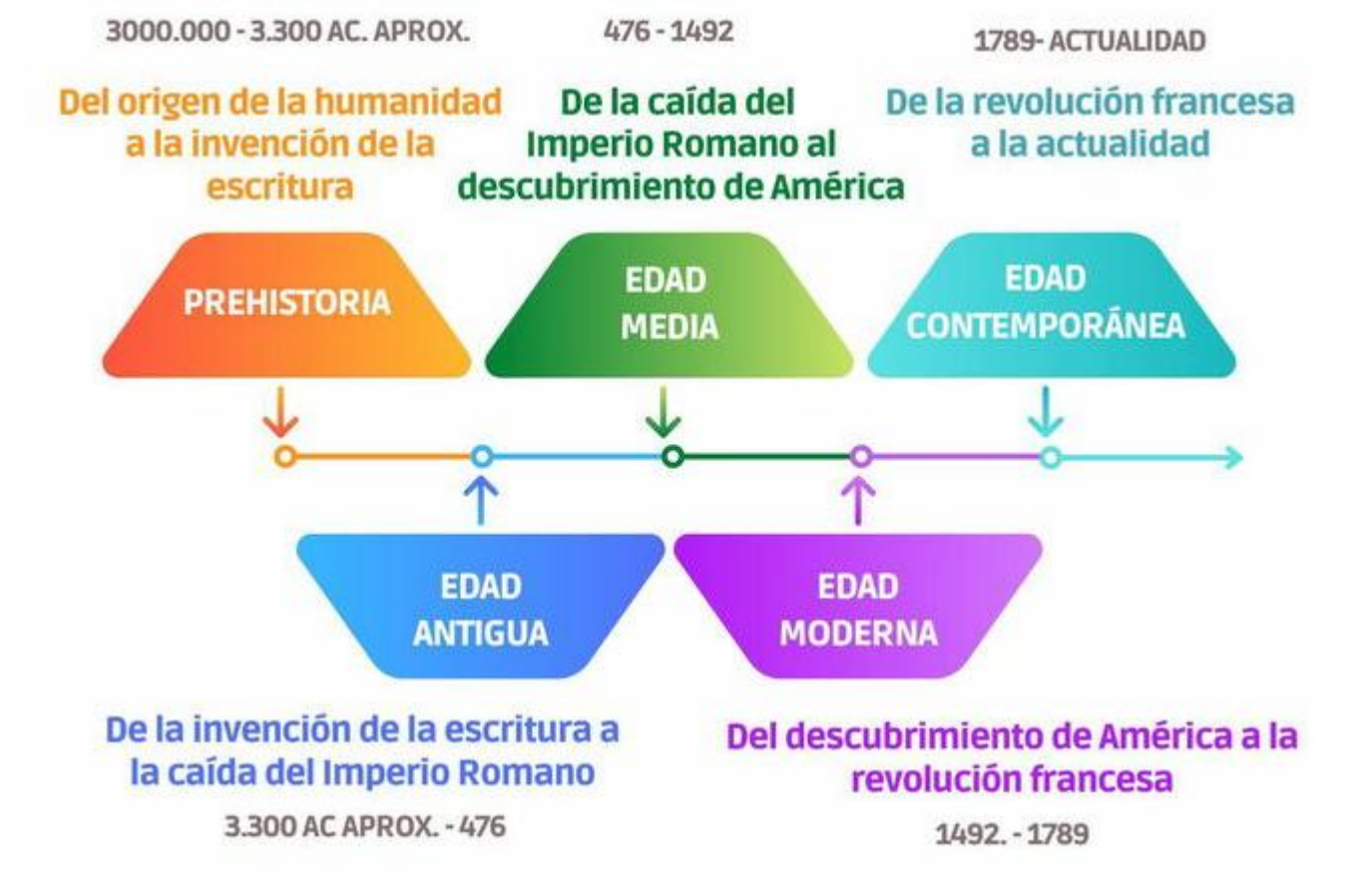
COURSE POLICIES

- Slides
- Workshops
- Assignments
- Technical readings
- Additional material
- Grades

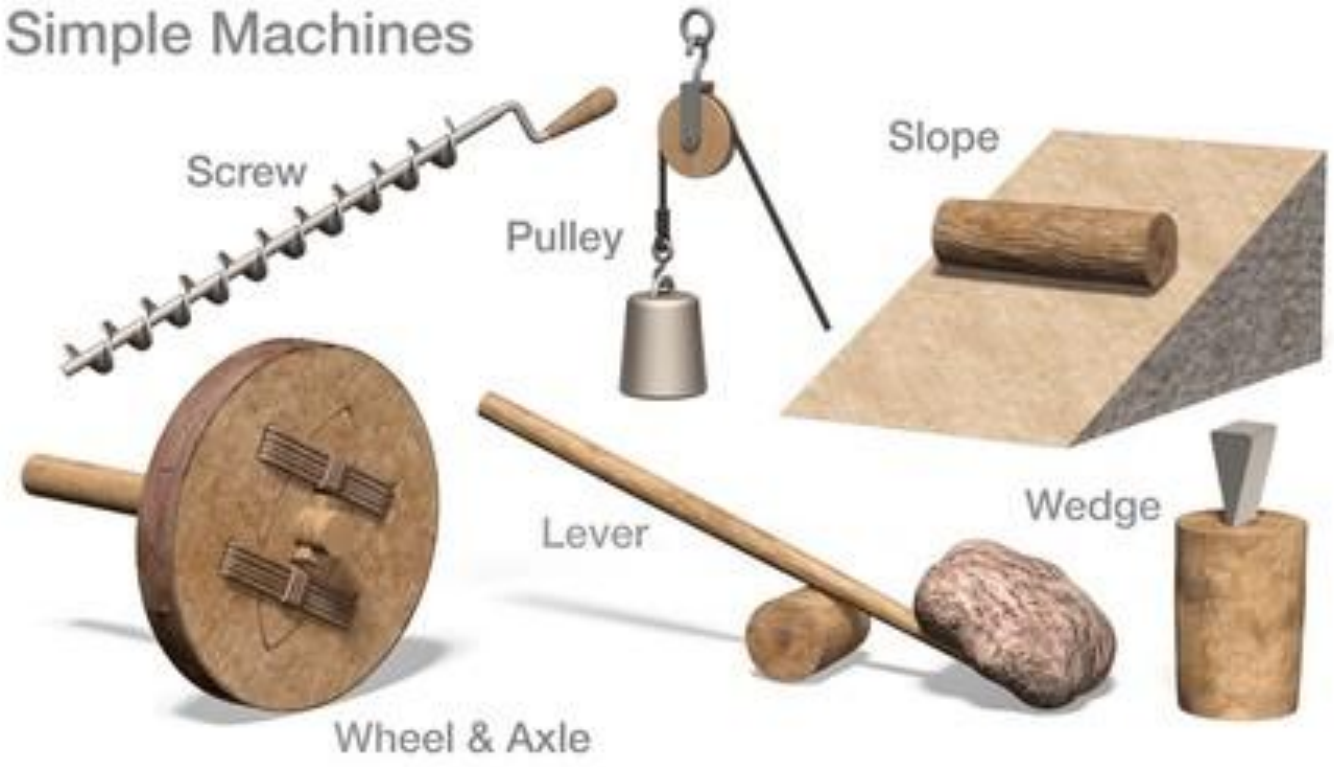
FIRST TERM

- 40% Project 1
- 30% Quizzes
- 30% Workshop

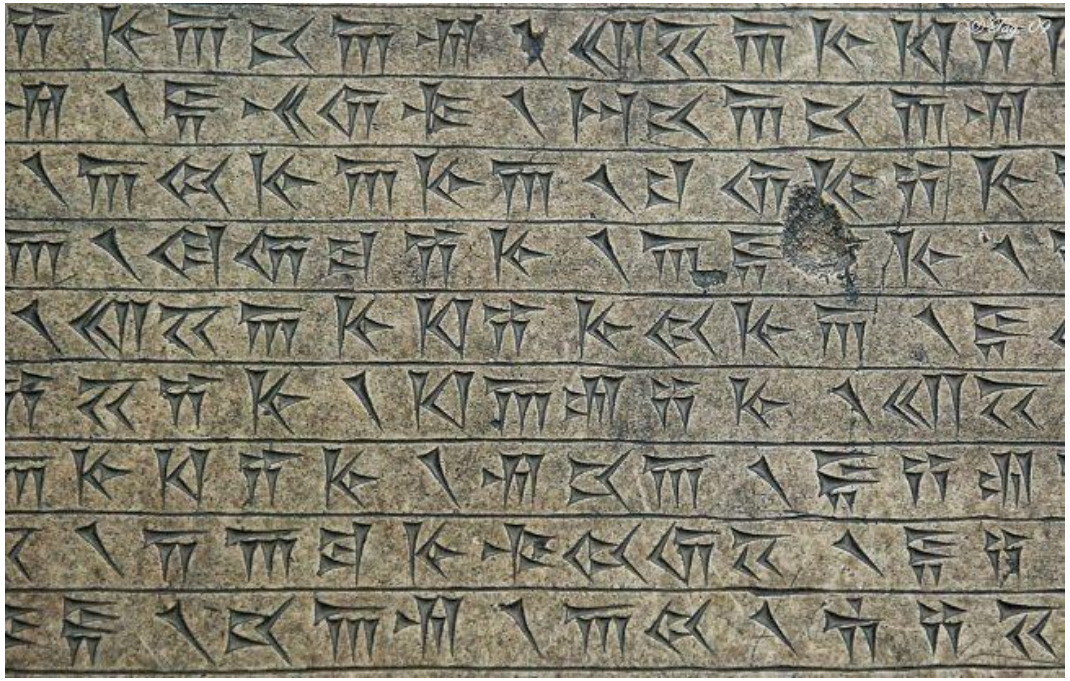
HISTORY


3000.000 - 3.300 AC. APROX.
Del origen de la humanidad a la invención de la escritura
476 - 1492
De la caída del Imperio Romano al descubrimiento de América
1789- ACTUALIDAD
De la revolución francesa a la actualidad
PREHISTORIA
EDAD MEDIA
EDAD CONTEMPORÁNEA
EDAD ANTIGUA
EDAD MODERNA
De la invención de la escritura a la caída del Imperio Romano
3.300 AC APROX. - 476
Del descubrimiento de América a la revolución francesa
1492. - 1789

PREHISTORY



ANCIENT ERA



3500 a.C.

2600 a.C.

ANCIENT ERA

S II a.C.

S III a.C

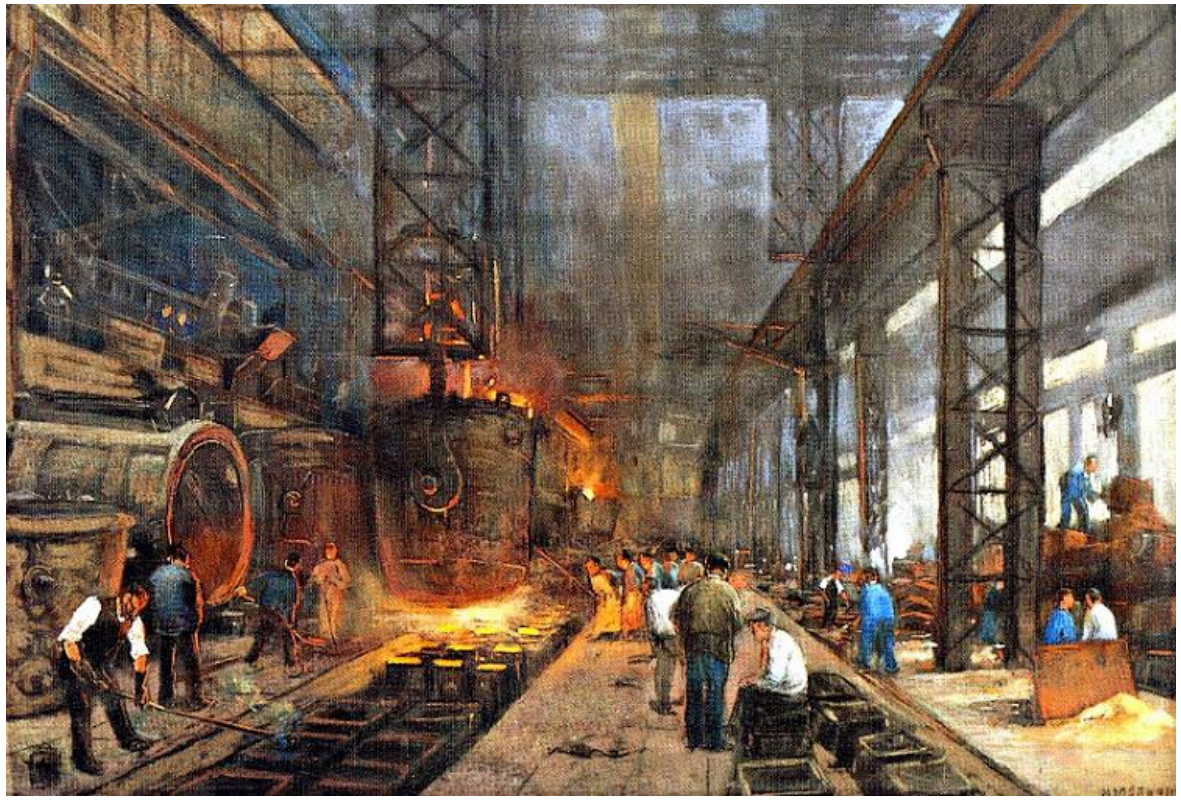
MIDDLE AGE

S VI

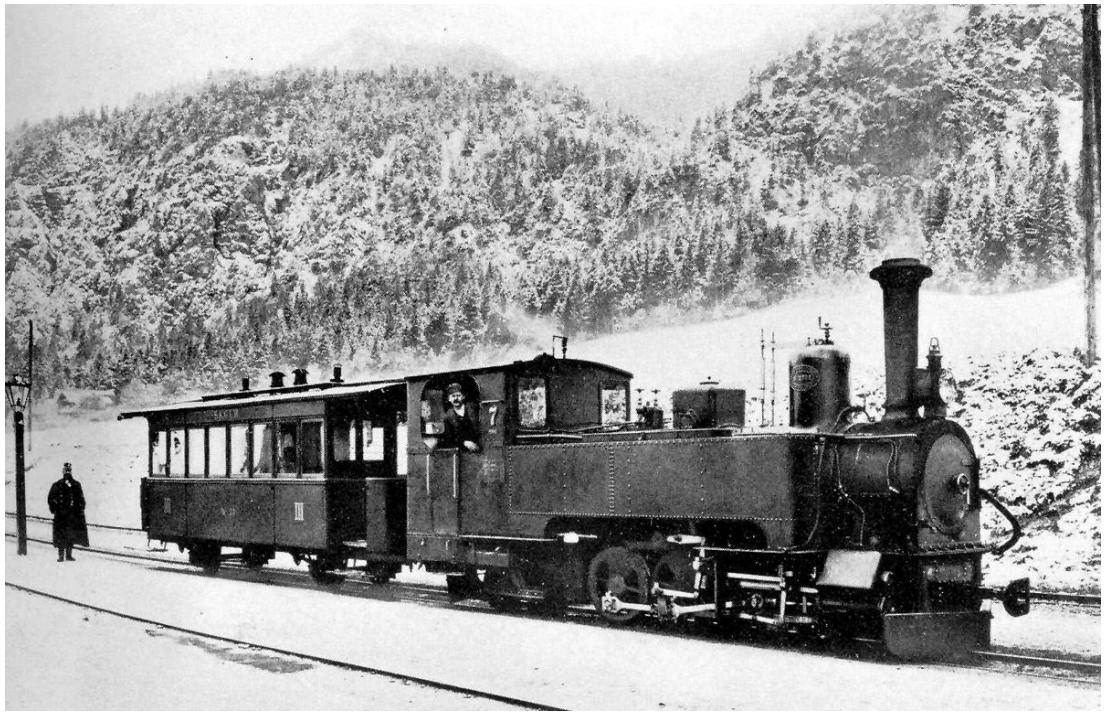
S V

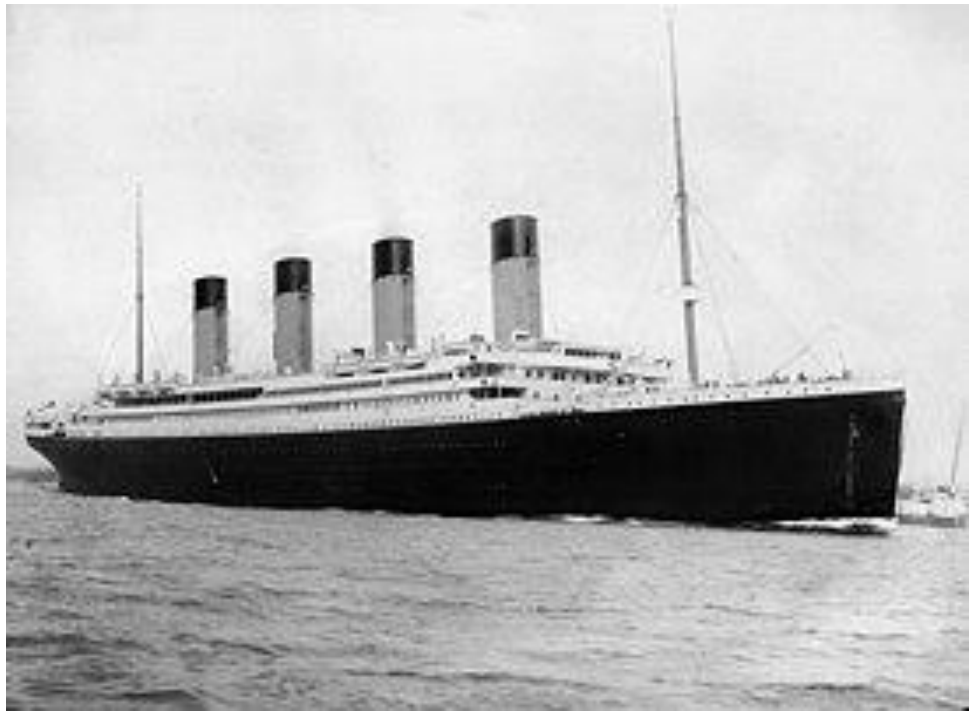
MODERN AGE

FIRST INDUSTRIAL REVOLUTION



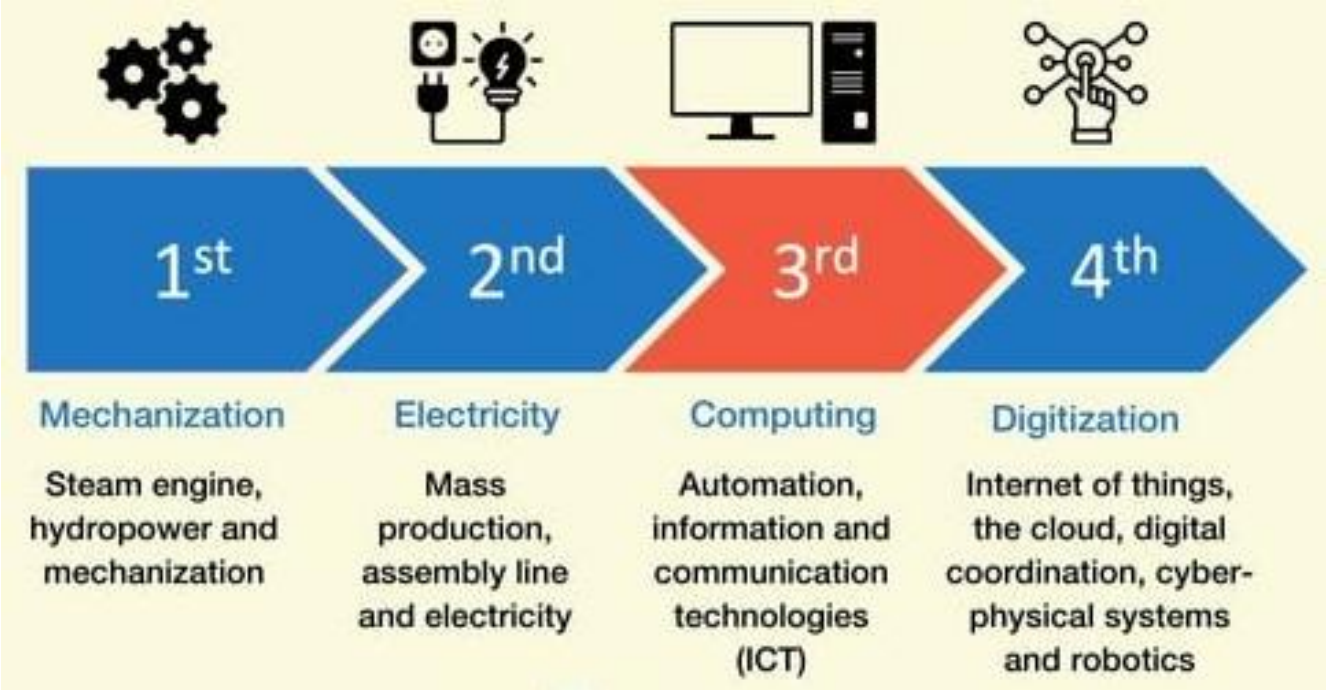
SECOND INDUSTRIAL REVOLUTION

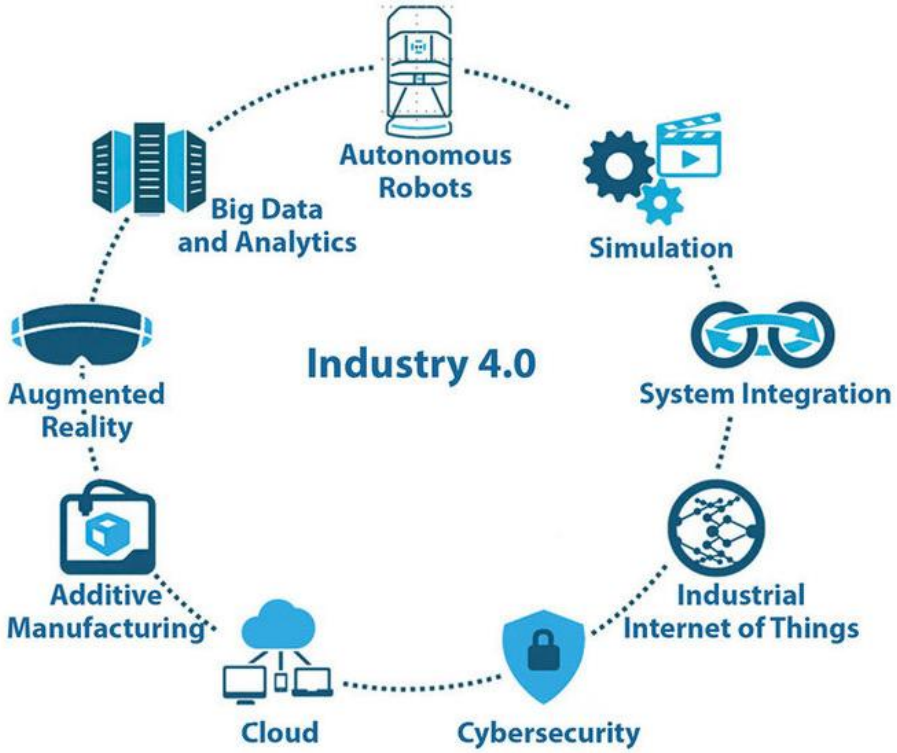




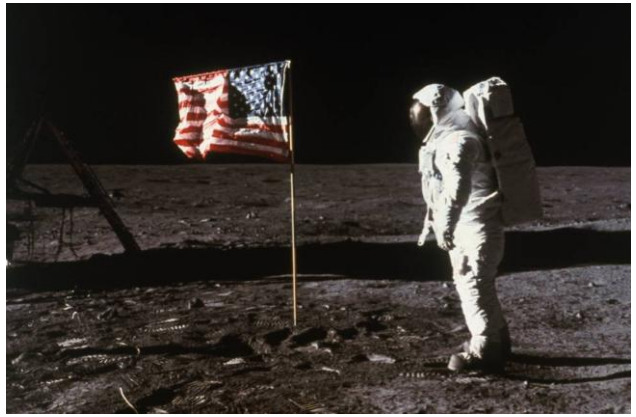
THIRD INDUSTRIAL REVOLUTION

FOURTH INDUSTRIAL REVOLUTION?





LATE MODERN AGE



ON THE OTHER HAND

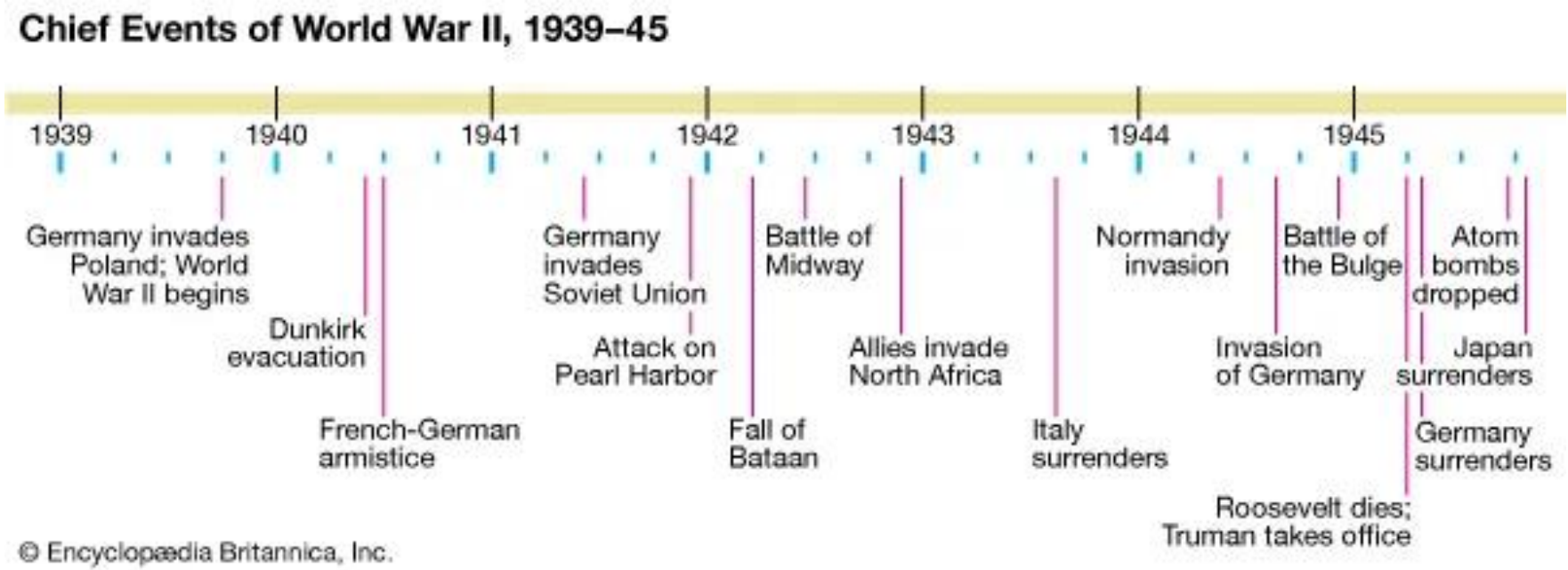
Major wars in modern history

WAR	YEARS	ESTIMATED NUMBER OF DEATHS IN MILLIONS
World War II	1939-1945	35-60
Second Sino-Japanese	1937-1945	15.7 - 20
World War I	**1914-1918**	**14**
Russian civil	1917-1923	7
Chinese civil	1945-1949	7
2nd Congo	1998-2003	5.4
Nigerian civil	1967-1970	3
Vietnam	1954-1975	3
Soviet-Afghan	1979-1989	1

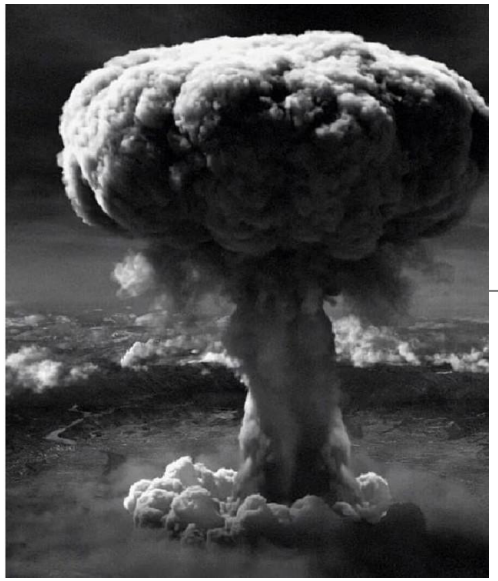
News Research Center • AP

WORLD WAR II

https://www.youtube.com/watch?v=HUqy-OQvVtI



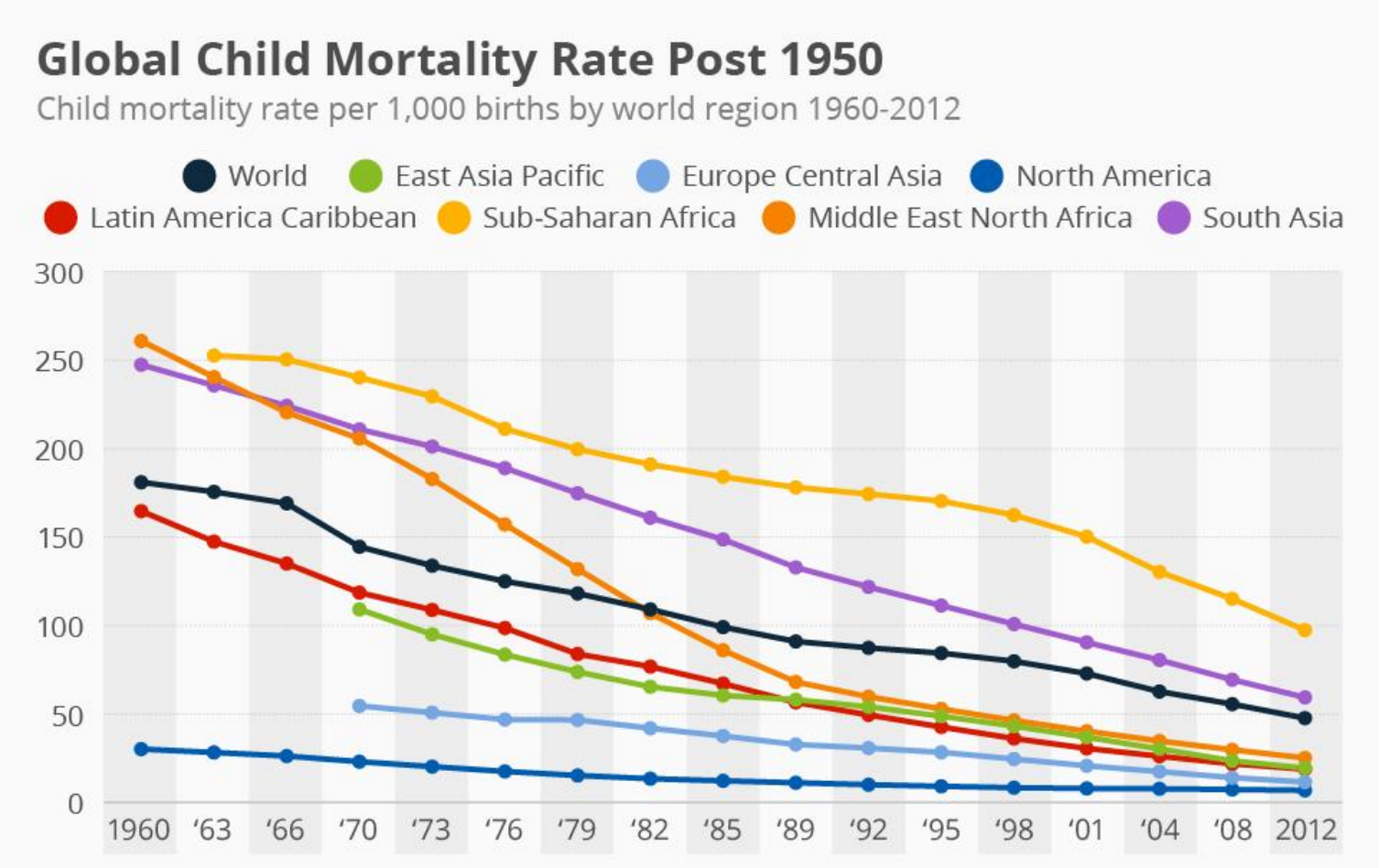
WORLD WAR II



https://www.youtube.com/watch?v=qeGNlKPQc4s

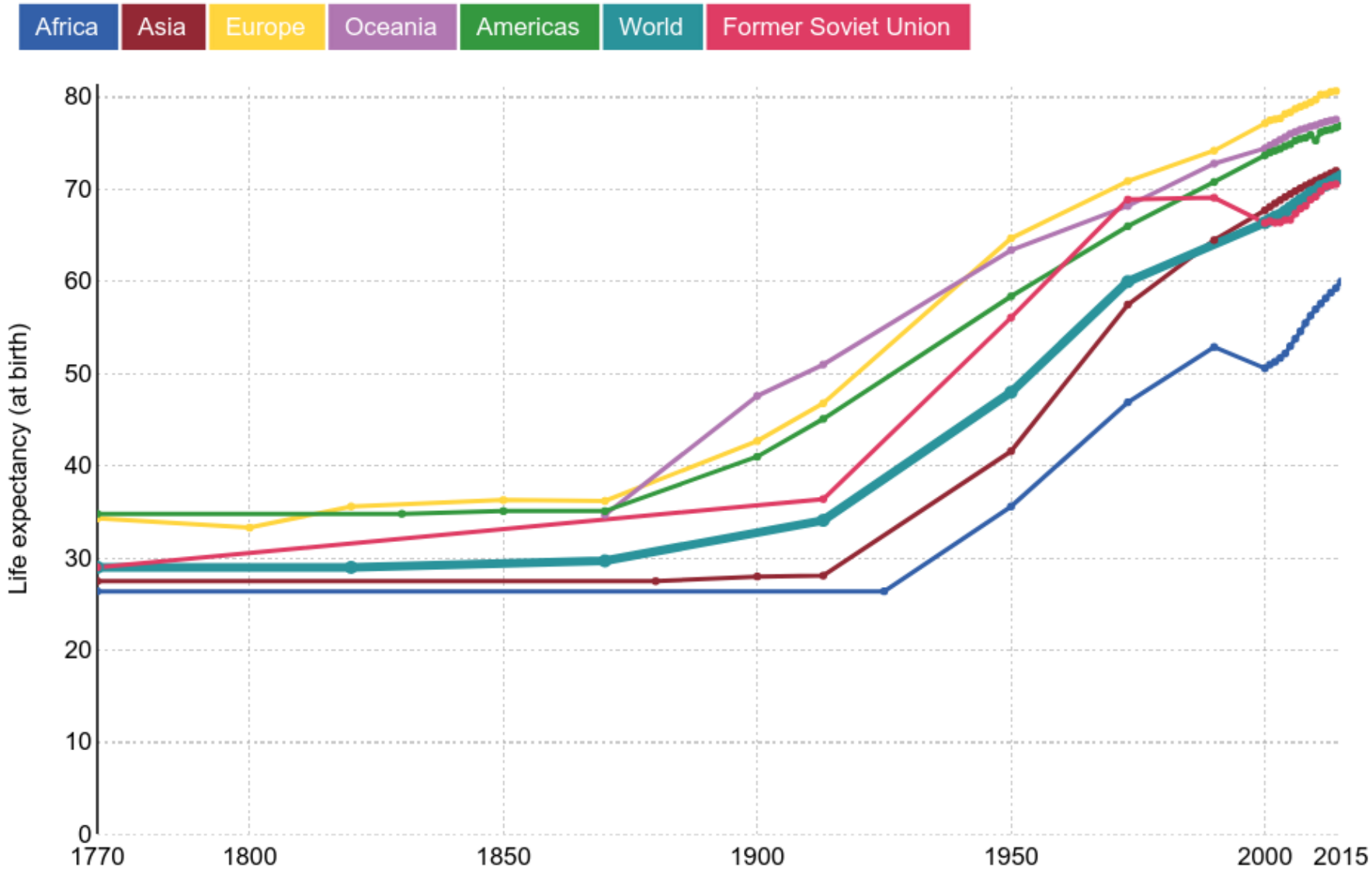
VIETNAM WAR

GOAL?


Global Child Mortality Rate Post 1950
Child mortality rate per 1,000 births by world region 1960-2012
World
East Asia Pacific
Europe Central Asia
North America
Latin America Caribbean
Sub-Saharan Africa
Middle East North Africa
South Asia
300
250
200
150
100
50
0
1960
'63
'66
'70
'73
'76
'79
'82
'85
'89
'92
'95
'98
'01
'04
'08
2012

Life expectancy globally and by world regions since 1770

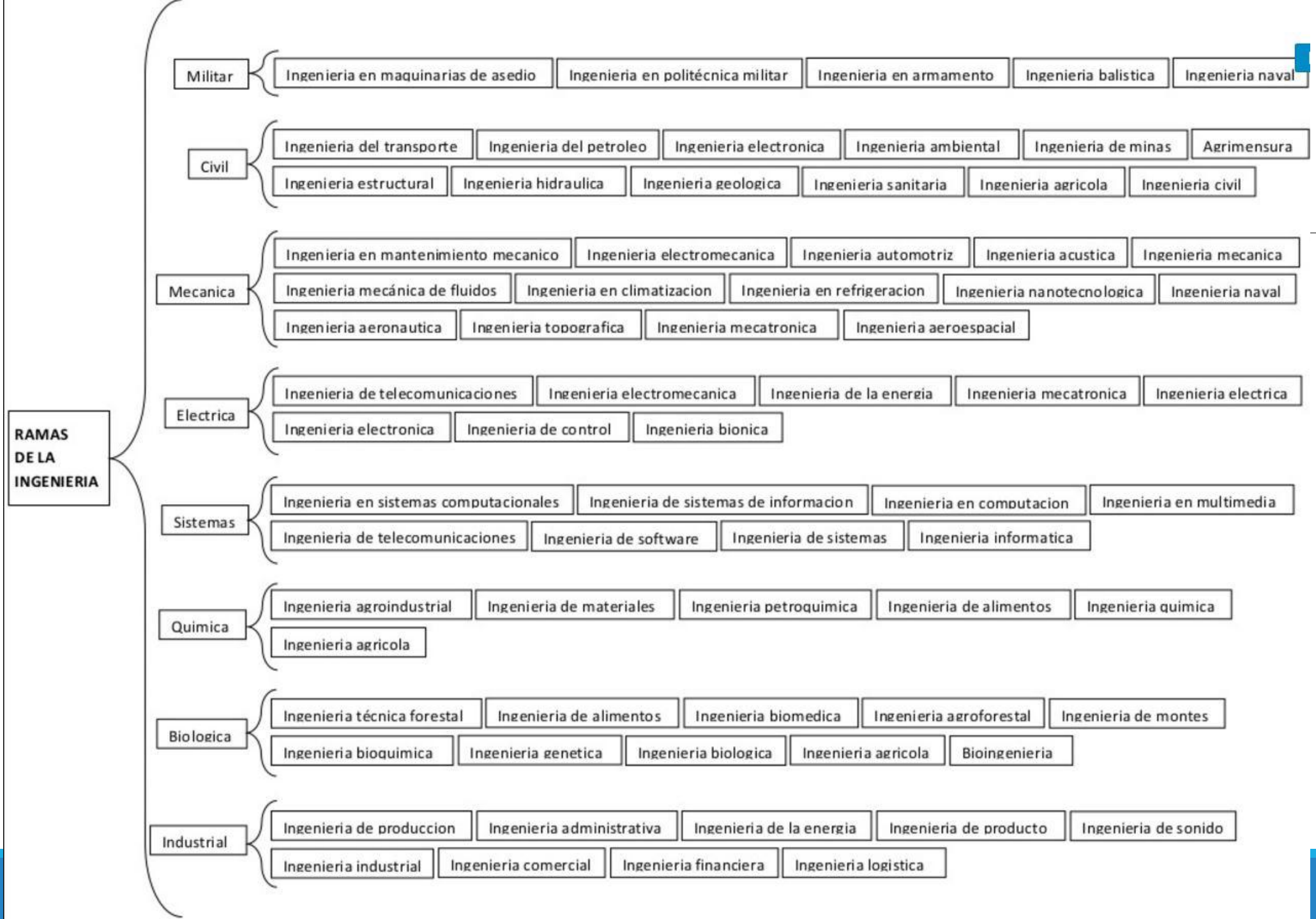
Our World in Data



Source: Life expectancy – James Riley for data 1990 and earlier; WHO and World Bank for later data (by Max Roser) OurWorldInData.org/life-expectancy/ • CC BY-SA

ENGINEERING DEFINITION

The creative application of scientific principles to design or develop structures, machines, apparatus, or manufacturing processes, or works utilizing them singly or in combination; or to construct or operate the same with full knowledge of their design; or to forecast their behavior under specific operating conditions; all as respects an intended function, economics of operation and safety to life and property


RAMAS DE LA INGENIERIA
Militar
Ingenieria en maquinarias de asedio
Ingenieria en politécnica militar
Ingenieria en armamento
Ingenieria balistica
Ingenieria naval
Civil
Ingenieria del transporte
Ingenieria del petroleo
Ingenieria electronica
Ingenieria ambiental
Ingenieria de minas
Agrimensura
Ingenieria estructural
Ingenieria hidraulica
Ingenieria geologica
Ingenieria sanitaria
Ingenieria agricola
Ingenieria civil
Mecanica
Ingenieria en mantenimiento mecanico
Ingenieria electromecanica
Ingenieria automotriz
Ingenieria acustica
Ingenieria mecanica
Ingenieria mecánica de fluidos
Ingenieria en climatizacion
Ingenieria en refrigeracion
Ingenieria nanotecnologica
Ingenieria naval
Ingenieria aeronautica
Ingenieria topografica
Ingenieria mecatronica
Ingenieria aeroespacial
Electrica
Ingenieria de telecomunicaciones
Ingenieria electromecanica
Ingenieria de la energia
Ingenieria mecatronica
Ingenieria electrica
Ingenieria electronica
Ingenieria de control
Ingenieria bionica
Sistemas
Ingenieria en sistemas computacionales
Ingenieria de sistemas de informacion
Ingenieria en computacion
Ingenieria en multimedia
Ingenieria de telecomunicaciones
Ingenieria de software
Ingenieria de sistemas
Ingenieria informatica
Quimica
Ingenieria agroindustrial
Ingenieria de materiales
Ingenieria petroquimica
Ingenieria de alimentos
Ingenieria quimica
Ingenieria agricola
Biologica
Ingenieria técnica forestal
Ingenieria de alimentos
Ingenieria biomedica
Ingenieria agroforestal
Ingenieria de montes
Ingenieria bioquimica
Ingenieria genetica
Ingenieria biologica
Ingenieria agricola
Bioingenieria
Industrial
Ingenieria de produccion
Ingenieria administrativa
Ingenieria de la energia
Ingenieria de producto
Ingenieria de sonido
Ingenieria industrial
Ingenieria comercial
Ingenieria financiera
Ingenieria logistica

SUSTAINABLE DEVELOPMENT GOALS

QUIZ 1

¿Cómo se puede aportar desde la Ingeniería a las metas planteadas en los ODS?

https://www.un.org/sustainabledevelopment/es/objetivos-de-desarrollo-sostenible/