

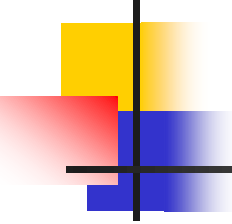
Curricular Programs & Extracurricular Activities of Nuclear Engineering Education at NTHU in Taiwan



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Outline

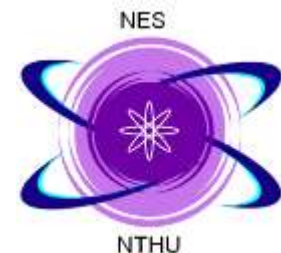
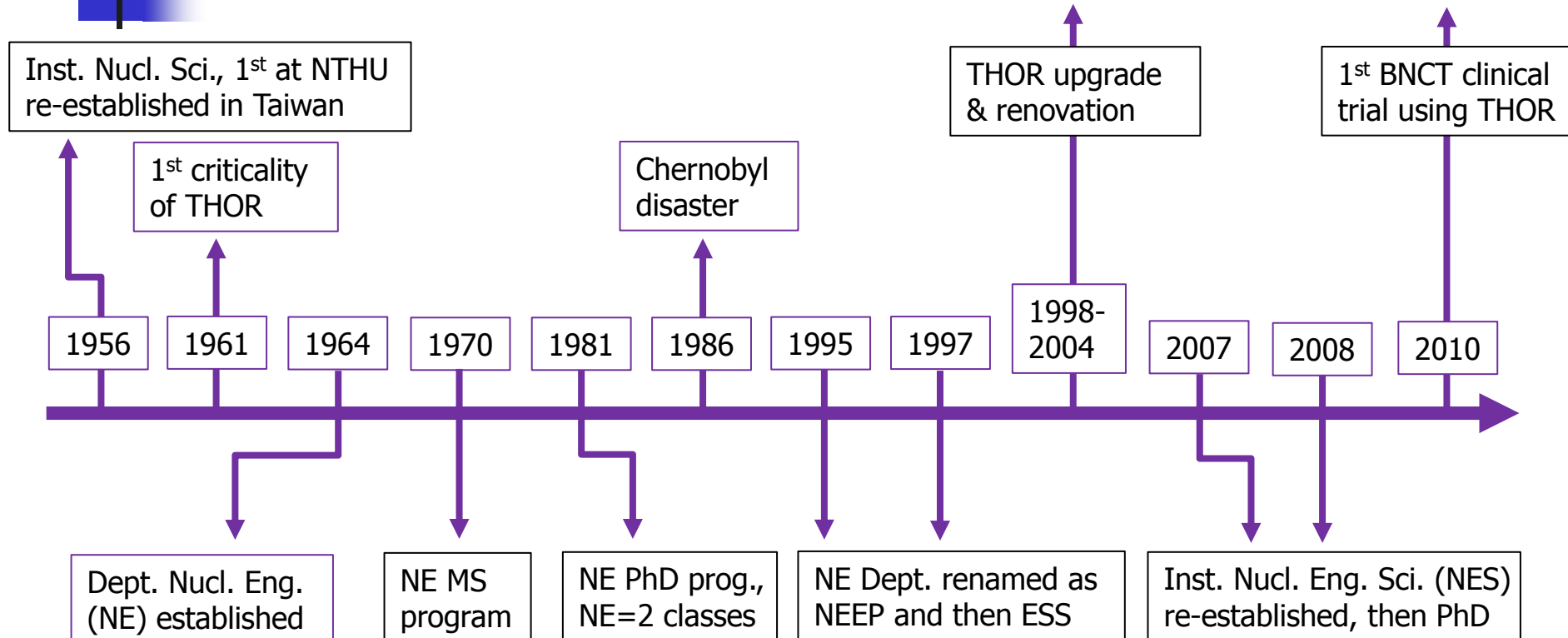
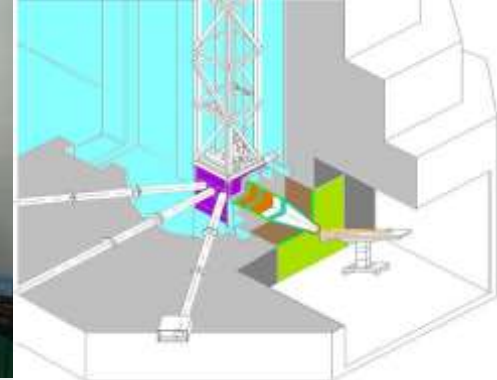
- Nuclear engineering (NE) at NTHU
- Curricular programs
- Extracurricular activities
 - Nuclear Engineering Summer School
 - Maintenance Science Summer School
 - Low Carbon Green Energy Summer School
- Strategic partners
- Conclusions



Nuclear Engineering at NTHU

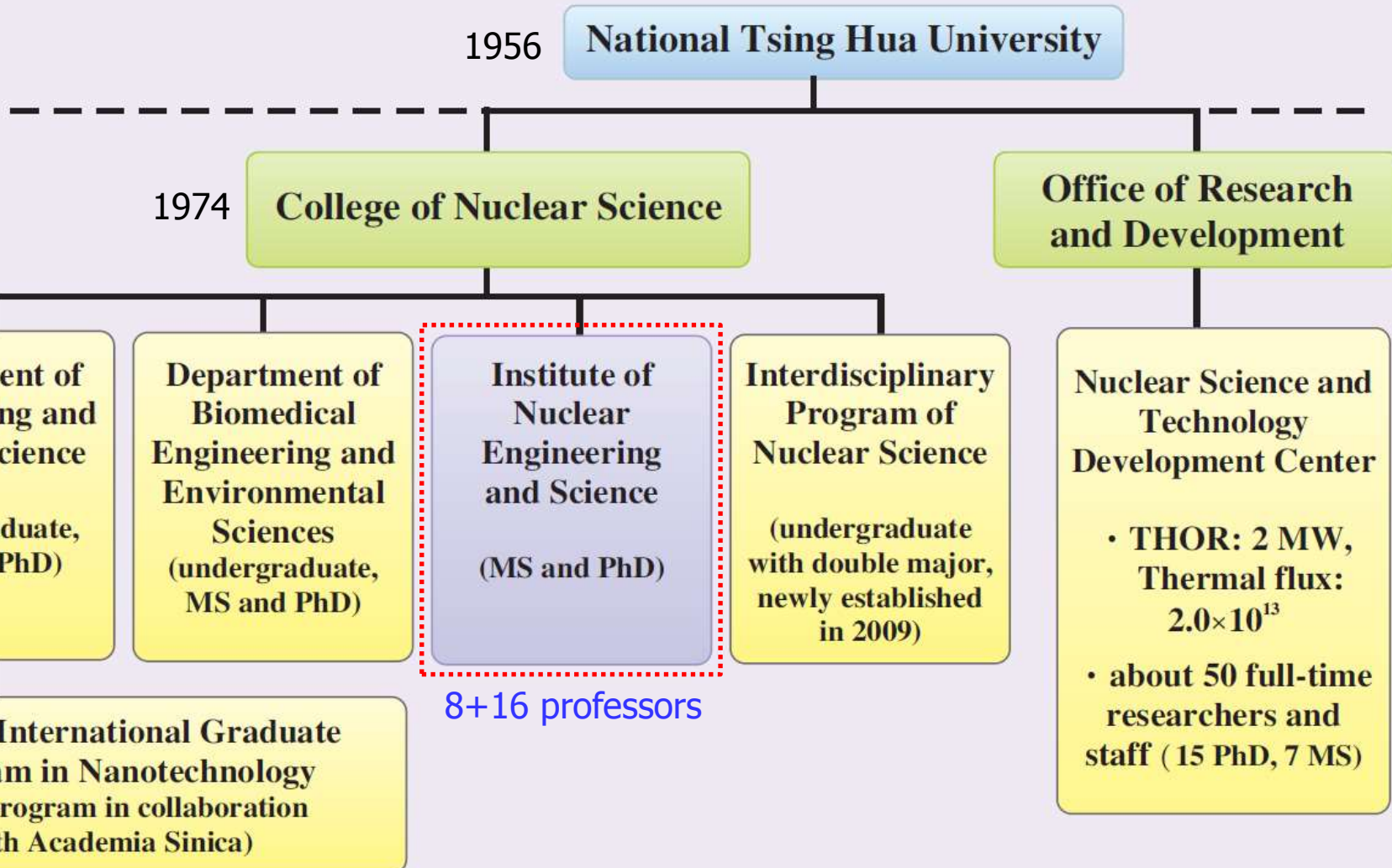
since 1956

NE History





Organization Structure



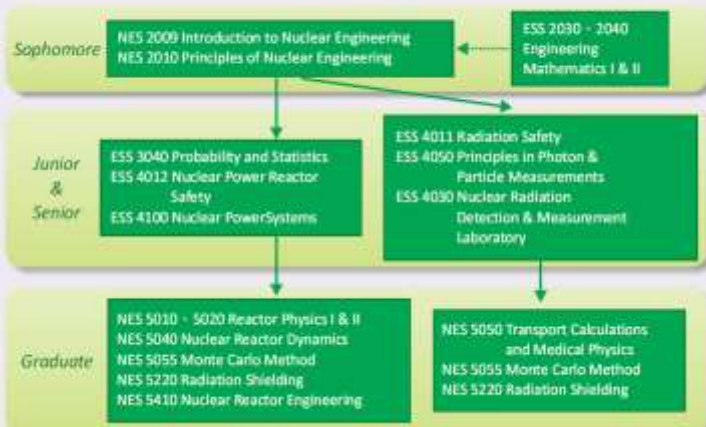
Research & Education at Inst. of Nucl. Eng. & Sci.

- Reactor Physics and Shielding
- Heat Transfer and Reactor Safety
- Nuclear Materials
- Nuclear Science
- Beam Technology

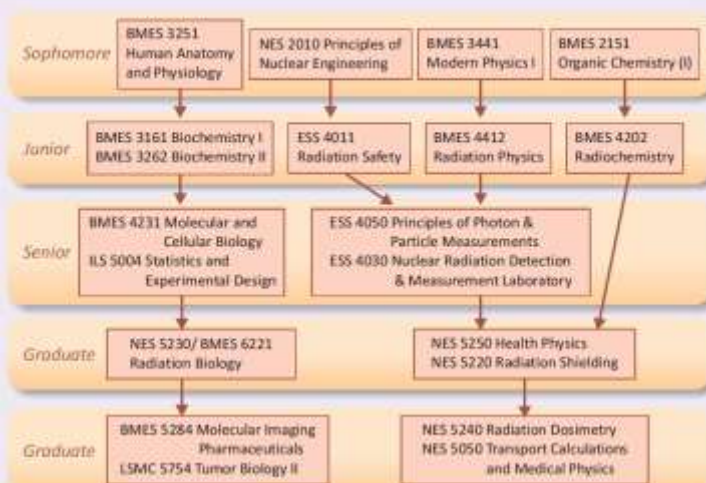
Curricular Programs for 5 sub-fields



Courses in Reactor Physics and Shielding



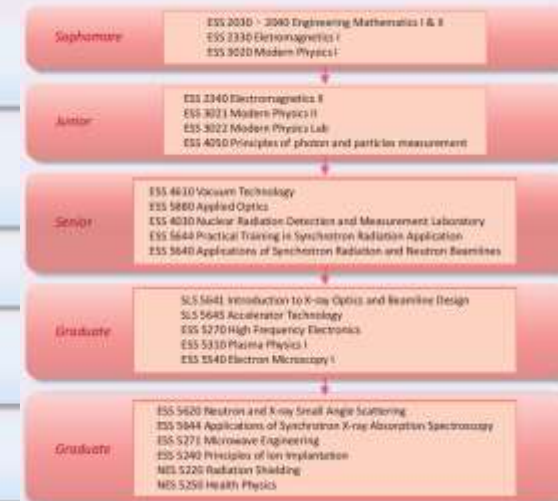
Courses in Nuclear Science



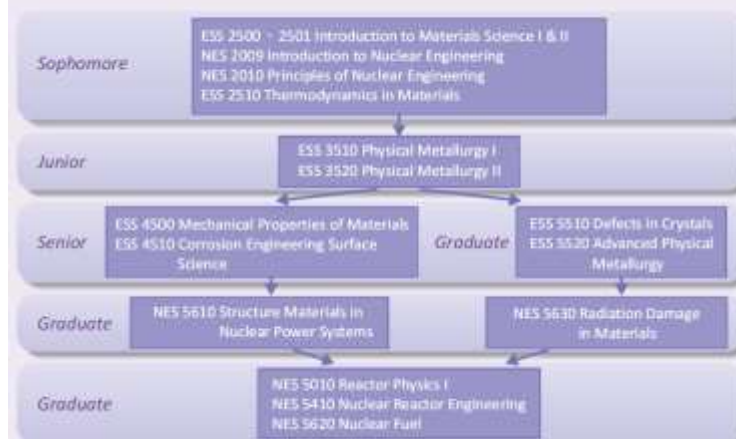
Courses in Nuclear Thermal Hydraulics



Courses in Beam Technology



Courses in Nuclear Materials



Course Map of Reactor Physics & Shielding

Sophomore

ESS2009: Introduction to Nuclear Engineering
NES2010: Principles of Nuclear Engineering



*Junior
&
Senior*

ESS4011: Radiation Safety
ESS4012: Nuclear Power
Reactor Safety
ESS4100: Nuclear Power
Systems

ESS4011: Radiation Safety
ESS4050: Radiation Detection
and Measurement
ESS4030: Radiation Detection
& Meas. Lab.



Graduate

NES5010: Reactor Physics I
NES5020: Reactor Physics II
NES5040: Nuclear Reactor
Dynamics
NES5055: Monte Carlo Method
NES5410: Nuclear Reactor
Engineering

NES5010: Reactor Physics I
NES5050: Radiation Transport
Calc. & Medical Phys.
NES5055: Monte Carlo Method
NES5220: Radiation Shielding

Extracurricular Activities & Strategic Partners in NE Education

Regional Cooperative NE Summer Schools



- In the region of western pacific basin, especially China and South Korea, nuclear energy is still considered as an important option for power generation even after the Fukushima accident.
- A nuclear accident anywhere is one everywhere.
- Nuclear safety, public education, experience exchange and information sharing are keys to public acceptance for nuclear energy. It is then quite clear that regional cooperative program to promote mutual understanding and cooperation is crucial for nuclear energy development worldwide.

Regional Cooperative NE Summer Schools



- NTHU in Taiwan has been very actively co-sponsored several regional cooperative NE summer schools over the last decade with universities in neighboring countries, such as China, Korea, and Japan.
- The co-sponsors now include Tsinghua, SJTU, KAIST, CityU, JSM, and others.



JAPAN SOCIETY OF MAINTENOLOGY



NE Summer Schools at NTHU

- Nuclear Engineering Summer School (2007~)
 - SJTU (China), KAIST (S. Korea), NTHU (Taiwan)
- Maintenance Science Summer School (2014~)
 - JSM (Japan), NTHU (Taiwan), UTokyo (Japan)
- Low Carbon Green Energy Summer School (2012~)
 - Tsinghua (China), CityU (Hong Kong), NTHU (Taiwan)

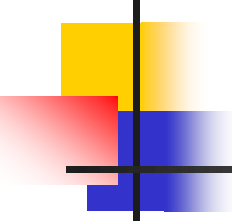


Workshops



NTHU & 3 NE summer schools in western pacific basin

Title	Main Subjects	Student	Level, Len.	Sponsors
NESS 2015	Systems, safety, innovations	36	advanced, 1 week	NTHU SJTU KAIST
MSSS 2014	Maintenance, operation	27	advanced, 1 week	NTHU JSM
LCGESS 2015	Introduction to Green energy	60	beginner, 3 weeks	NTHU Tsinghua CityU



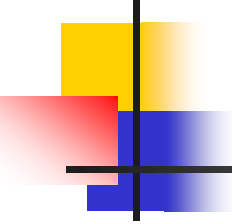
Strategic Partners in NE Education

Promoting international academic collaborations

- Dual master program (2y+1y) with Tsinghua University in Beijing
- Dual PhD program (2y+2y) with the University of Liverpool in UK

Cooperating with domestic industry and medicine

- Taiwan Power Company
- Institute of Nuclear Energy Research
- Industrial Technology Research Institute
- Private companies



Conclusions

- ESS and NES at NTHU provide a unique nuclear engineering and science program in Taiwan, offering various high-quality courses at both undergraduate and graduate levels in related areas.
- The well-organized curriculum attracts many young students that are interested in this field. On top of that, several co-sponsored summer school workshops designed for friendship exchange and broadening students' global perspectives in nuclear engineering are successful.



Thank you



NE/ESS/NES at NTHU since 1964