NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE

CC0007	Science and Technology for Humanity

Academic Year	AY2022/23
Academic Units	3AUs
Tutorial Hours	39

COURSE AIMS

The course aims to inspire a long-lasting mindset of awareness, critical thinking, curiosity, and collaboration across disciplines through the lens of contemporary and near-future challenges for human communities in relation to scientific and technological innovations.

Students will learn to perceive and analyse the potential benefits and costs of scientific/technological innovations and applications from different perspectives and on different scales. Students will then use these skills to identify real-life challenges and to propose solutions.

INTENDED LEARNING OUTCOMES

Upon the successful completion of this course, you (as a student) will be able to:

1. **(Content)** Describe the basic scientific/technical principles of the featured cutting-edge fields/innovations; the kinds of human problems/challenges that these are meant to address; and the additional problems/challenges posed in and by their application.
2. **(Interdisciplinary)** Describe and analyse connections between, three general classes of perspectives on the challenges of innovation and application: scientific/technical, business, and humanistic/social scientific perspectives
3. **(Critical thinking)** Identify, critique, and evaluate ethical, financial, organisational, legal, social, and cultural components surrounding the application of technological innovations.
4. **(Problem solving)** Identify and present possible innovations and solutions for their application that would achieve a consensual balance between scientific-business-social concerns.
5. **(Team)** Collaborate effectively on project development in cross-disciplinary teams.

COURSE CONTENT

Topics to be covered in the course:

1. Ways in which Science and Technology can be understood as being *for* Humanity.
2. 3 Perspectives on the relations Science-Humanity: Science/Tech, Business, Humanities/Social Science (i.e. Innovation, Application, Impact).
3. Introduction of “Circular model” for thinking about Science-Humanity/Humanity-Science relations (Why and how humans make science? How and why science impacts humans?).
4. Application of circular model through major humanistic themes (e.g. life, equality, prosperity) with respect to applications of specific technological examples.
5. Detailed consideration of scientific-business-social challenges related to at least three major fields of cutting-edge scientific and technological development (e.g. Artificial intelligence, Data Analytics, Metaverse, Synthetic Biology).