Final Exam

Course Title:	**Taller de Traducción Ingeniería y Adelantos Tecnológicos**
Course ID:	**IT0628 (Marron, 25-2)**
Cohort ID:	**6A1**
Exam Date:	**22 Apr 2025**

General Instructions: This is a **take-home exam**. The exam is comprehensive and will cover material from the entire course. You are encouraged to organize and review all of your homework and previous exams before starting this final exam. Answer in English unless requested to do so otherwise. Please do your own work and do not share your answers; academic integrity is always your choice.

Attempt to answer all questions, even if you are uncertain. Whenever possible, provide answers in bullet list format with complete content. Tasks will be evaluated by sub-tasks. Three (3) points are available for each sub-task: Accuracy (1 pt), Completeness (1 pt), and Sufficiency (1 pt). Points will be awarded in 0.1 increments. There are **75 points** available.

Please provide your answers on separate sheets of paper. The first page should have the title, "Final Exam." Make sure your name and the date are written in the top right-hand corner of every page. You may type out your answers or answer in written form with pencil or black/blue pen. When you have finished the exam, please staple all of the pages together in the proper order.

This exam is **DUE Tuesday, April 22, 2025 by 19:00 hrs in Room 202, UTECA.** If you prefer to take the exam on April 22 during the regular class period you are welcome to do so.

I. Foundations of Science and Engineering

Task 1 (9 pts)

We have discussed science and engineering as somewhat distinct disciplines.

a) Briefly summarize your conception of the similarities and the differences between engineering and science.

b) Do you think it is possible for engineers and scientists to be ethically and morally responsible for their work? Explain why or why not.

c1) Translate the following quote by Isaac Asimov into Spanish,

"Science can amuse and fascinate us all, but it is engineering that changes the world."

c2) Do you agree with Mr. Asimov? Explain why or why not.

Task 2 (6 pts)

Kuhn has provided a theoretical basis for how science evolves (see Kuhn, Thomas S. *The structure of scientific revolutions*. Vol. 962. Chicago: University of Chicago press, 1997.)

a) According to Kuhn, how does a discipline evolve to become a “normal science”?

b) Explain why the foundations of normal science limit the types of problems that can be solved.

Task 3 (6 pts)
Ritchy reiterates that earlier authors have noted that “there is a whole realm of social and organizational planning problems that cannot be successfully treated with traditional linear, analytical (systems-engineering-like) approaches….these [are] wicked problems, in contrast to tame problems“ (see Ritchey, Tom. "Wicked problems." *Acta morphologica generalis* 2.1 (2013).)

a) What are “wicked problems”?

b) Why are wicked problems generally outside the bounds of normal science?

II. Elements of Academic Work

Task 4 (9 pts)
Academic work in general, and academic writing in particular, both have very specific format and stylistic requirements.

a) Why is “academic voice” (third-person point of view) considered to be the standard for academic writing?

b) In Strunk and White’ s text, *The Elements of Style,* the authors state the following two rules,

i) *16. Use definite, specific, concrete language.*
ii) *17. Omit needless words.*

Explain what is meant by each of these rules and give an example.

Task 5 (6 pts)
According Hirst, “the word "jargon" has several meanings, but currently the two main definitions are: 1) the specialized language of any trade, organization, profession, or science; and 2) the pretentious, excluding, evasive, or otherwise unethical and offensive use of specialized vocabulary (see Hirst, R, J. TECHNICAL WRITING AND COMMUNICATION, Vol. 33(3) 201-229, 2003)

a) Briefly explain why “good” jargon is useful in science and engineering.

b) Provide a very short example of “bad” jargon.

III. Survey of Real-World Technical Documents

Task 6 (9 pts)

A Standard Operating Procedure (SOP) is a set of step-by-step instructions designed to ensure consistency and efficiency in performing routine tasks or processes within an organization.

a) What are the organizational benefits from using SOPs?

b) Translate the following excerpt from the Los Alamos National Laboratory SOP governing improvements to (non-nuclear) sites into Spanish,

Sites disturbing greater than 5,000 square feet are subject to Section 438 of the Federal Energy Independence and Security Act of 2007 which establishes strict storm water runoff requirements for federal facility development and redevelopment projects. The Section reads, "The sponsor of any development or redevelopment project involving a Federal facility with a footprint that exceeds 5,000 square feet shall use site planning, design, construction, and maintenance strategies for the property to maintain or restore, to the maximum extent technically feasible, the pre-development hydrology of the property with regard to the temperature, rate, volume, and duration of flow." Implementation of Section 438 must be achieved through the use of green infrastructure/low impact development (GI/LID) methods that use or mimic natural processes to: 1) infiltrate and recharge, 2) evapotranspire, and/or 3) harvest and use precipitation near to where it falls to earth. Examples of appropriate GI/LID are:

- *green roofs*
- *trees and tree boxes*
- *rain gardens*
- *vegetated swales*
- *pocket wetlands*
- *infiltration planters*
- *porous and permeable pavements*
- *vegetated strips*
- *reforestation and revegetation*
- *protection of riparian buffers and floodplains*
- *rain barrels and cisterns*

Task 7 (9 pts)

An RFP, or Request for Proposal, is a business document that announces a project, describes its requirements, and solicits bids from qualified contractors to complete it.

a) What type and size of organizations or entities are likely to use RFPs? Why?

b) Translate the following excerpt from an RFP posted by the United Nations Fund for Population Activities (UNFPA) into English,

SOLICITUD DE PROPUESTA (SDP)
El Fondo de Población de las Naciones Unidas (UNFPA, por sus siglas en inglés), una agencia de desarrollo internacional, busca ofertas calificadas para la provisión de servicios de "Programación de

una plataforma digital de un sistema de indicadores demográficos para el monitoreo del embarazo adolescente en el Estado de México y los estados de la subcomisión Centro-Oriente y, Validación del Índice de Desarrollo Humano de las juventudes para el monitoreo del embarazo adolescente en el Estado de México" . Por la presente, su compañía es invitada a presentar su mejor propuesta financiera y técnica para el servicio requerido. Su propuesta podría ser la base de un contrato para servicios profesionales (CPS, por sus siglas en inglés) entre su empresa y UNFPA.

Task 8 (3 pts)

Written scientific communication encompasses various formats, including peer-reviewed articles, white papers, research papers, conference presentations, theses, dissertations, reports, and even popular science writing.

a) Compare and contrast research papers and white papers.

IV. Contemporary Topics in Engineering and Science

Task 9 (6 pts)

6G technology for telecommunication is rapidly being developed for deployment within a few years. 6G is not simply an improvement in communication but a radically new paradigm shift (see Celik, Abdulkadir, and Ahmed M. Eltawil. "At the dawn of generative AI era: A tutorial-cum-survey on new frontiers in 6G wireless intelligence." *IEEE Open Journal of the Communications Society* 5 (2024): 2433-2489)

a) Describe at least three of the new features expected for 6G communication.

b) What are your thoughts on living in a 6G world?

V. Elements of Professional Consulting

Task 10 (3 pts)

In Quality Management Systems (QMS), document control standards, are often guided by ISO (International Organization for Standardization) 9001. ISO 9001 document control requirements mandate that you must: i) Approve documents before issue.; ii) Review and update documents as necessary and re-approve them; iii) Identify changes and the current revision status of documents; and iv) Ensure that relevant versions of applicable documents are available at points of use.

a) Why will Git coupled with Github help meet ISO 9001 standards?

Task 11 (3 pts)

Recent studies[1] [2] [3] [4] suggest that, while AI-powered translation systems still lag behind human translators in some domains, the future promises a successful partnership between the two: machine translators do the first cut (the "heavy lifting") and human translators perform the post-editing. Advantages from this partnership appear to be high document throughput plus high quality translation.

a) Do you see this type of partnership as a viable future for the translation industry? Explain why or why not.

VI. Building Vocabulary

Task 12 (6 pts)

a) From the list of 342 vocabulary words, select 10 words. Try to select words that you find interesting. Provide a translation and definition for each of the 10 words in both English and Spanish. See the attached document, "6A1_All-Vocab_25-2_Python.txt" for the complete list of vocabulary words.

YOU'RE DONE!!
Congratulations and thank you.

1 Translation Quality of Artificial Intelligence and Machine Translation Vs. Human Translation Utilizing MTPE Skills (An Empirical Study on Allusion Translation). (2024). *Journal of Social Studies*, *30*(3), 46-72. https://doi.org/10.20428/jss.v30i3.2545

2 Fu, L., Liu, L. What are the differences? A comparative study of generative artificial intelligence translation and human translation of scientific texts. *Humanit Soc Sci Commun* **11**, 1236 (2024). https://doi.org/10.1057/s41599-024-03726-7

3 Farghal, M., & Haider, A. S. (2024). Translating classical Arabic verse: human translation vs. AI large language models (Gemini and ChatGPT). *Cogent Social Sciences*, *10*(1). https://doi.org/10.1080/23311886.2024.2410998

4 Yan, J., Yan, P., Chen, Y., Li, J., Zhu, X., & Zhang, Y. (2024). Gpt-4 vs. human translators: A comprehensive evaluation of translation quality across languages, domains, and expertise levels. *arXiv preprint arXiv:2407.03658*.