Universidad de Puerto Rico en Mayagüez
Decanato de Asuntos Académicos

INTD 3990

Technology, Justice and Wellbeing

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Manual with syllabus and primary texts

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INTD 3990: Technology, Justice and Wellbeing

First semester 2016 – 2017

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I. DESCRIPTION

Study of contemporary technological culture and comparison with alternative and appropriate technological options that are oriented to achieving sustainability, improving the conditions of life on earth and satisfying the needs of the community.

En español: Estudio de la cultura tecnológica contemporánea y comparación con opciones tecnológicas alternativas y apropiadas orientadas a la sustentabilidad, a mejorar las condiciones de vida en la tierra, y a satisfacer las necesidades de la comunidad.

II. INTRODUCTION

Following the appropriate technology tradition and philosophy of technology as theoretical frameworks, this course examines practices of technology innovation and engineering design, and conceptions of human progress. The student develops skills in scientific reasoning and philosophy to be able to critique contemporary technological culture and compare alternative technological options that are oriented to achieving sustainability and fostering human wellbeing in communities and globally.

En español: A partir de la tradición en tecnología apropiada y la filosofía de la tecnología como marcos teóricos, este curso examina prácticas de innovación en tecnología y de diseño ingenieril, y conceptos de progreso humano. El estudiante desarrolla habilidades en razonamiento científico y en filosofía para poder hacer un análisis crítico de la cultura tecnológica contemporánea y poder comparar opciones tecnológicas alternas que están orientadas a lograr sustentabilidad y a promover el bienestar humano en las comunidades y globalmente.

III. MOTIVATION

This class is for people who want to change things. Perhaps you are disturbed by injustices, climate change, or violence. Perhaps you are motivated by courageous leaders, brilliant inventors, or community activists. Perhaps you are repelled by greed and selfishness and say "hey, I can't accept that". Or perhaps you are inspired by acts of generosity or expressions of wisdom. In any case, perhaps *you are wondering what you can do*. If you are concerned more about your grade than how you can change yourself or the world, then you are in the wrong class. But if you who are inspired, this class will provide you the opportunity to seriously inquire about things you want to change and to take meaningful actions.

IV. OBJECTIVES

1. Students will be able to **describe the mutual interplay between technology and society**: how consumer choices, professional practices, economic and other powerful interests inform and determine technology innovation and engineering design, and how technology in turn influences social structures.

2. Using the appropriate technology and the humanitarian engineering traditions as theoretical frameworks along with other philosophic forms of theory, students will be able **to critique various practices** of technology innovation and design, and poorly analyzed conceptions of human progress.

3. Students will develop some basic **quantitative skills** that will edify them as informed and literate citizens in a science and technology oriented world.

4. Students will be able **to conceptualize alternative approaches** to pursue innovation and design appropriately, considering broad developmental, cultural, political, economic and environmental concerns.

5. Students will be encouraged to **develop a shared sense of responsibility for choosing and for collaborating in bringing about the technologies** that are commensurate with achieving sustainability, justice, and wellbeing for people and the broader ecosystem.

V. MODES OF EVALUATION AND OTHER POLICIES

1. Attendance---being bodily present in class sessions---is an integral part of the learning experience for this course. **Coming to class discussions will hence constitute 20% of the overall grade.**

We will hold 30 class sessions of an hour and fifteen minutes. Every absence without exception will represent 1.5 points of the 20 points out of 100 (20%) that correspond to class attendance. Every lateness and early departure[1] will represent .5 points. For instance, if at the end of the semester, records show you have been absent twice and you have been late three times, 4.5 points will be subtracted from your overall grade, which would mean that the highest grade you could get for the course would be 95.5 or 'A', which is not that bad. Anyway, during the semester, you will be able to recover some of those points, all of them, and any points whatsoever, doing extra work (Please refer to **EVALUATION MODE 5**).

You don't need to submit medical excuses or anything of the sort. They will not make any difference. Being absent is being absent. The problems arise only if you are frequently absent or late. In that case, you lose too many points in attendance, and most important, you may miss the direction and gist of class discussions, which means that you will probably do poorly in the other modes of evaluation, including the optional work to gain extra points. If you want to do well in the course, we highly recommend you make a commitment with yourself to come to class discussions on a regular basis, and to do optional work to regain whatever extra points you may want to gain during the semester.

2. A second mode of evaluation is class participation. We all need to develop public communication skills. **Participation will hence constitute another 20% of the overall grade.** Included in these 20 points is having the corresponding texts at hand in class discussions in order to be able to cite and to refer to particular passages. Class participation includes formulating and expressing reactions, questions and arguments related to the readings assigned. Class participation also encompasses positive and informed collaboration with the group's process, including listening to others. The final grade in this mode of evaluation will be in accordance with the following guidelines:

In general terms, the student collaborated . . .

. . . decisively in the discussion of the texts (20 points)
. . . regularly in the discussion of the texts (18-19 points)
. . . with the discussion of the texts (16-17 points)
. . . not very much, but kept up with the readings and mainly listened attentively (14-15 points)
. . . not much, but generally kept up with the readings (12-13 points)
. . . not sufficiently, and was unable to generally keep up with the readings (11 points or less)

The quality of class participation depends on abilities that vary greatly among students with very different backgrounds. Any student that so desires shall be able to negotiate and reach an agreement with one of the professors on how his or her particular effort in participation will be evaluated. In some cases, more than in others, office hours will constitute an important component.

Toward the end of the semester, every student will submit a statement with her judgment of her own participation in class and the participation of others, and a numeric self-evaluation. The grade for this mode of evaluation will be based on those statements, the numeric self-evaluations, and the judgment of the professors.

3. **40% of the overall grade will be based on two short essays of 10 points each**

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[1] We appreciate being notified in advance of any necessary early departure.

and one research essay of 20 points related to a long term action project. These will be assigned and discussed in class in accordance with the **COURSE CALENDAR** included in this syllabus. On page 13 of the syllabus, you will find a **GUIDE TO THINK THINGS THROUGH** for each essay and, on page 14 you will find a **DIAGRAM ON PUTTING THE PARTS IN ORDER**. The guide and the diagram will help you when you are on your own writing the essays.

The essays will be evaluated according to the following table:

> **Grading: 10 = superior mastery; 9 = full mastery; 8 = meets the challenge;**
> **7 = apprentice; 6 = insufficient effort or challenge(s) poorly understood;**
> **5, 4, . . . = deficient effort or challenge(s) not understood**

Challenge	First essay 10 points (individual)	Second essay 10 points (individual)	Research essay related to long term action project 20 points (group/team of four)
Focuses on and explains **an important aspect of a theoretical framework** discussed in class (possibly more than one framework in third essay)	self-evaluation____/10 final evaluation____/10	self-evaluation____/10 final evaluation____/10	self-evaluation_____/20 final evaluation ____/20
Analyzes and develops **a case (a proposed change in the third essay),** based on that aspect of the theoretical framework, including independent research beyond the given class materials	self-evaluation____ /10 final evaluation____/10	self-evaluation_____/10 final evaluation____/10	self-evaluation_____/20 final evaluation_____/20
Discusses **a possible weakness** of that aspect of the theoretical framework	self-evaluation____/10 final evaluation____/10	self-evaluation____/10 final evaluation____/10	self-evaluation____/20 final evaluation____/20
Deliberates in favor or against the framework taking into account the case presented or, in the third essay, the experience with the action on the proposed change, and the possible weakness of the theoretical framework in discussion	self-evaluation____/10 final evaluation____/10	self-evaluation____/10 final evaluation____/10	self-evaluation____/20 final evaluation____/20
Demonstrates **dedication, discipline and pride** in the written word	self-evaluation____/10 final evaluation____/10	self-evaluation____ /10 final evaluation____/10	self-evaluation____/20 final evaluation____/20
The group/team followed the deadlines and carried out the proposed **action** making appropriate adjustments when needed	(not applicable)	(not applicable)	self-evaluation____/20 final evaluation____/20
Overall grade for each essay (the sum of the grades for each of the challenges divided by the number of challenges and rounded)	self-evaluation____/10 final evaluation____/10	self-evaluation____/10 final evaluation____/10	self-evaluation____ /20 final evaluation____/20

As explained, 20% of the grade will be based on a long term action project related to the third essay. A project will be assigned to each group to be inspired by the general question "what do you want to change?" The envisioned change should relate to technology in a coherent way, and must combine independent research, action, and reflection. Both "successes" and "failures" will be considered as valid experiences as long as sufficient evidence is presented to substantiate the work. A list of potential project ideas or themes is provided on the Ecourses page, but students are expected to devise a complete formulation of the project. The project will include two partial deadlines – a project proposal to be submitted by session 8 and a progress report to be submitted by session 17 focusing on the actions.

Action: an action must be taken that is aimed toward inspiring or effecting the proposed change and may take one or more forms, such as (i) a meaningful change in your personal or group behavior, (ii) direct communication with a relevant power broker (for example, letter or interview), (iii) a visible public action, (iv) a community engagement project, (v) a piece of investigative journalism, (vi) a prototype of a new design (artifact, methodology, educational method, etc.), or (vii) another proposed action approved by the instructors. In addition to the explicit sub-score for the action, all of the other challenges for the third essay will be assessed in relation to the action.

5. **The remaining 20% of the grade for the course will be based on several short technical/quantitative exercises that will be assigned periodically.** In a technologically oriented world, making good decisions about use and design of technology – in both personal and public affairs – it is necessary to develop a basic level of scientific and technical literacy and related skills. These will be developed through a series of technical/quantitative exercises that expose students to introductory concepts of energy and power, thermodynamics, structures, and materials. General skills, such as the use of elementary geometry, algebra, modeling, and estimation will be applied. With this background, students will be able to provide approximate assessments of feasibility and operability of existing or proposed technologies. A background of high school mathematics and science is assumed.

6. Students may gain extra points through written reports on talks, conferences, and activities and engagements related to class discussions. Extra work must be either (1) in response to a general opportunity announced by the professors or (2) individually proposed and approved by the professors.
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7. All individual and group work ought to be an original and creative response to particular assigned texts and discussions in this course. Plagiarism will not be tolerated, and neither will the collaboration with the corruption of the potential for originality and creativity of a fellow student. That is the policy of academic integrity in this course. All evidenced absence of integrity will be submitted with the required documentation to the Dean of Academic Affairs for the corresponding disciplinary actions.

8. Use of all electronic devises during class time is prohibited unless explicitly approved by the professors on a case by case basis.

VI. TEXTS

1. PRIMARY TEXTS
You are required to get a paper copy of the following basic readings in the form of a manual at El Colegial in Mayagüez Terrace. The syllabus for the course comes with the manual.

BRIEF: Practical Action, "What is Appropriate Technology?", pages 1-6.

BOOK CHAPTER: Carl Mitcham and David Muñoz, "1. Engineering", **Humanitarian Engineering**, Morgan & Claypool, 2010, pages 1-9.

JOURNAL ARTICLE: John R. Schramski, David K. Gattie, and James H. Brown, "Human domination of the biosphere: Rapid discharge of the earth-space battery foretells the future of humankind", **2015 Proceedings of the National Academy of Sciences**, 112 (31), pages 9511-9517.

BLOG MATERIAL: Kris De Decker, "Slow Electricity: The Return of DC Power", **Low Tech Magazine,** April 27, 2016

BOOK CHAPTERS: Kelvin W. Willoughby, "An Integrated Framework", "A Review of Possible Criticisms", **Technology Choice: A Critique to the Appropriate Technology Movement**, Boulder, Colorado: Westview Press, 1990, pages 265-308, 309-330.

BOOK CHAPTERS: Carl Mitcham and David Muñoz, "3. Humanitarian Engineering", **Humanitarian Engineering**, Morgan & Claypool, 2010, pages 27-35.

BOOK CHAPTER: Practical Action, "Conventional Wisdom – The current development narrative and why it doesn't work", **Wellbeing, Technology Justice and Sustainable Development: Fighting Poverty as if People Really Mattered**, pages 2-43.

BOOK CHAPTERS: E. F. Schumacher, "The Role of Economics" and "Buddhist Economics", **Small is Beautiful: Economics as if People Mattered**, New York: Harper & Row, pages 40-62.

CONFERENCE PAPER: Jon A. Leydens, Juan C. Lucena and Dean Nieusma, "What is Design for Social Justice?", **Proceedings of the American Society for Engineering Education Annual Conference and Exposition**, June 2014, pages 1-30

ESSAY: Pieter Tijmes, "Albert Borgmann: Technology and the Character of Everyday Life", in Hans Achterhuis, editor, **American Philosophy of Technology: The Empirical Turn**. Trans. Robert P. Crease. Bloomington and Indianapolis: Indiana University Press, 2001, pages 11-36.

BOOK PASSAGES: Donna Riley, **Engineering Thermodynamics and 21st Century Energy Problems: A Textbook Companion for Student Engagement**, Morgan & Playpool, 2011 (passages to be assigned)

ESSAY: Marcel Castro Sitiriche y Luis Jiménez Rodríguez, "Responsible Wellbeing and Energy Threshold". **Ethos gubernamental: Revista del Centro para el Desarrollo del Pensamiento Ético**, Oficina de Ética Gubernamental, No. VII, San Juan, Puerto Rico, pp. 64-126, June 2014.

BOOK CHAPTER: Héctor Huyke-Souffront, "La sustitución de las cercanías por lo lejano", **Tras otro progreso: Filosofía de la tecnología desde la periferia**. Cabo Rojo, Editorial Educación Emergente, 2013, pages 107-124.

BOOK CHAPTER: Dale Jamieson, "The Frontiers of Ethics", in **Reason in a Dark Time: Why the Struggle Against Climate Change Failed and What It Means for Our Future**. Oxford, England: Oxford University Press, 2014, pages 144-177.

2. SUPPLEMENTARY TEXTS

BOOK CHAPTER: Juan Lucena, Jen Schneider, and Jon A. Leydens, "Engineering With Community", **Engineering and Sustainable Community Development**, Morgan & Claypool, 2010, pages 85-116.

BOOK CHAPTER: Juan Lucena, Jen Schneider, and Jon A. Leydens, "Listening to the Community", **Engineering and Sustainable Community Development**, Morgan & Claypool, 2010, pages 116-152.

BOOK CHAPTER: Carl Mitcham, "From Philosophy to Technology", **Thinking Through Technology: The Path Between Engineering and Philosophy**. Chicago: The university of Chicago Press, 1994, pages 137-160.

BOOK CHAPTERS: Carl Mitcham and David Muñoz, "2. Humanitarianism", "4. Humanitarian Engineering Education", "5. Challenges" and "6. Conclusion: Humanizing Technology", **Humanitarian Engineering**, Morgan & Claypool, 2010, pages 11-26 and 37-62.

ESSAY: Indira Nair, "Engineering Technology and Global Justice", Multinational Colloquium on Science and Technology for Development, Center for Research and Advanced Studies, Mexico City, 8 pages.

ARTICLE: Paul Polak, "Out of Poverty: What Works When Traditional Approaches Fail". Book review available at http://blog.paulpolak.com/?p=376

BOOK CHAPTER: Donna Riley, "3. Engineering and Social Justice", **Engineering and Social Justice**, Morgan & Playpool, 2008, pages 47-106.

BOOK CHAPTERS: E. F. Schumacher, "A Question of Size" and "Technology with a Human Face", **Small is Beautiful: Economics as if People Mattered**, pages 63-75 and 146-159.

ESSAY: Sara C. White "Analyzing Wellbeing: A Framework for Development Practice", University of Bath/Wellbeing in Developing Countries Research Group, Bath, UK, 2009 (unpublished), pages 1-25.

ESSAY: Sara C. White, "Bringing Wellbeing into Development Practice. Working Paper", University of Bath/Wellbeing in Developing Countries Research Group, Bath, UK, 2009 (unpublished), pages 1-32.

BOOK CHAPTER: Kelvin W. Willoughby, "Technological Semantics", **Technology Choice: A Critique of the Appropriate Technology Movement**, pages 15-44.

ESSAY: Kelvin W. Willoughby, "**Technological Semantics and Technological Practice: Lessons from an Enigmatic Episode in Twentieth-Century Technology Studies**", *Knowledge, Technology, & Policy*, Fall 2004-Winter 2005, Vol. 17, No. 3-4, pp. 11-43.

BOOK CHAPTER: Sherry Turkle, "Education", in **Reclaiming Conversation; The Power of Talk in the Digital Age**. New York, Penguin, 2015, pages 211-248.

3. PARTICULARLY RELEVANT LINKS

1. Practical Action Organization is dedicated to working alongside communities across the world to develop practical solutions to poverty focusing on appropriate technologies: http://practicalaction.org/

2. New Economics Foundation is an organization dedicated to the promotion of social, economic and environmental justice: http://www.neweconomics.org/issues/entry/well-being

3. Singularity Hub "chronicles technological progress by highlighting the breakthroughs, players, and issues shaping the future as well as supporting a global community of smart, passionate, action-oriented people who want to change the world": http://singularityhub.com/

4. Engineer, inventor, and MacArthur Fellow Saul Griffith meticulously analyzes his energy usage: video, http://www.oreilly.com/pub/e/1411

5. Low Tech Magazine: Doubts on progress and technology, http://www.lowtechmagazine.com/

6. Jason Silva, technology as evolution, http://thisisjasonsilva.com/

7. The *MIT Technology Review* seeks to "equip its audiences with the intelligence to understand a world shaped by technology", http://technologyreview.com

4. PARTICULARLY RELEVANT CASES

Smart Rural Microgrid - Smart Village Book - https://rael.berkeley.edu/wp-content/uploads/2015/07/Smart_Villages_New_Thinking_for_Off_grid_Comunities_Worldwide.pdf

Appropriate technology in Duchity, Haiti - Papadopoulos, Frey, Castro, et al., "Sponsoring Research in Appropriate Technology" and others to be announced
    ◦ Hybrid Microgrid Participatory Design
    ◦ Bamboo for building
    ◦ Biosand Filters

Renewable and Appropriate Energy Laboratory - https://rael.berkeley.edu/projects/
        pay as you go energy -
            short - https://rael.berkeley.edu/wp-content/uploads/2015/06/Imagine-Magazine_Dan-Kammen-MayJune2015.pdf
            report - https://rael.berkeley.edu/wp-content/uploads/2015/05/LG-2015-PAYG-Report-Alstone-etal.pdf

D-Lab - https://d-lab.mit.edu/resources

Olin College Capstone: Affordable Design and Entrepreneurship - http://www.olin.edu/academics/experience/engineering-capstone/

Health Applications - http://www.path.org/

Energy for Delivery - http://www.pbs.org/newshour/rundown/delivering-in-the-dark-we-care-solar/

VII. COURSE CALENDAR	ACTION PROJECT DEADLINES AND SPACE FOR COMMENTS

VII. COURSE CALENDAR

FIRST PART

(1) Exploratory exercise on techno-optimism and techno-pessimism. Discussion on the relevant technologies for class reading materials. The professors' agreement on this matter.

> **POST-EXPERIENCE READING ASSIGNMENT:**
> http://www.inc.com/tess-townsend/3-moonshot-ideas-diamandis.html and
> http://energybulletin.dev.postcarbon.org/52210

(2) The syllabus as contract and continuation of exploratory exercise. Forming of interdisciplinary groups/teams of four for the action essay and other exercises.

(3) Introduction to appropriate technology

> **READING ASSIGNMENT**: Papadopoulos, Frey, Castro, et al., "Sponsoring Research in Appropriate Technology", pages 4-8; Practical Action, "What is Appropriate Technology?", pages 1-6.

> Supplementary readings: Mitcham and Muñoz, "1. Engineering", **Humanitarian Engineering**, pages 1-9.

(4)(5) Introductory concepts of energy and power

> **READING ASSIGNMENT**: Schramski, Gattie, and Brown, "Human Domination of the Biosphere: Rapid Discharge of the Earth-Space Battery Foretells the Future of Humankind", pages 9511-9517; De Decker, "Slow Electricity: The Return of DC Power", 11 pages.

(6)(7) Appropriate technology as theoretical framework; humanitarian engineering as secondary theoretical framework

> **READING ASSIGNMENT**: Willoughby, "An Integrated Framework", **Technology Choice: A Critique to the Appropriate Technology Movement**, pages 265-308; Mitcham and Muñoz. "3. Humanitarian Engineering", **Humanitarian Engineering**, pages 27-35.

> Supplementary readings: Mitcham and Muñoz, "2. Humanitarianism", "4. Humanitarian Engineering Education" and "5. Challenges" and "6. Conclusion: Humanizing Technology", **Humanitarian Engineering**, pages 11-26, 37-62; Mitcham, "From Philosophy to Technology", **Thinking Through Technology: The Path Between Engineering and Philosophy**, pages 137-160; Willoughby, "Technological Semantics", **Technology Choice: A Critique of the Appropriate Technology Movement**, pages 15-44; Willoughby, "Technological Semantics and Technological Practice: Lessons from an Enigmatic Episode in Twentieth-Century Technology Studies", pages 11-43.

(8)(9) Review of possible strengths and weaknesses of the appropriate technology general framework:
 	
    READING ASSIGNMENT: Willoughby, "A Review of Possible Criticisms", **Technology Choice: A Critique to the Appropriate Technology Movement**, pages 309-330.
 	
    Supplementary reading: Polak, "Out of Poverty: What Works When Traditional Approaches Fail".
 	
(10)(11) Critique of the current global development narrative
 	
    READING ASSIGNMENT: Practical Action, "Conventional Wisdom – The current development narrative and why it doesn't work", **Wellbeing, Technology Justice and Sustainable Development: Fighting Poverty as if People Really Mattered**, pages 2-43; Schumacher, "The Role of Economics" and "Buddhist Economics", **Small is Beautiful: Economics as if People Mattered**, pages 40-62.
 	
    Supplementary reading: Nair, "Engineering Technology and Global Justice", CINVESTAV final draft, 8 pages.
	PROJECT PROPOSAL
	By session 8, groups/teams of four should submit proposal for action project.
	
	PROJECT PROPOSAL RESPONSE
	By session 11, groups/teams of four should visit in office hours to discuss proposal for action project.

**First short essay on
an aspect of the appropriate technology framework,
the humanitarian engineering framework or another theoretical framework
for analyzing the technological culture of the times
as discussed in this first part of the course, sessions 4 through 11
(three to four pages, double spaced, 10 points)**

1.This short essay is to be done individually.

2.For help in conceiving and writing this essay, refer to point 3 in **MODES OF EVALUATION**, pages 4 through 6 of this syllabus, and refer to the **GUIDE TO THINK THINGS THROUGH** and the **DIAGRAM ON PUTTING THE PARTS IN ORDER** in pages 13 and 14.

3.Grapar al final del trabajo la hoja con la tabla de evaluación que los profesores han de proveer y llenar los espacios que corresponden a la autoevaluación del primer trabajo.

Todo trabajo deberá ser entregado impreso a doble espacio, en letra comparable en tamaño a la de este prontuario, grapado, sin cartapacio, y en la fecha asignada:

Fecha límite:

SECOND PART	ACTION PROJECT DEADLINES AND SPACE FOR COMMENTS

(12)(13) Technology and social justice
 	
    READING ASSIGNMENT: Leydens, Lucena and Nieusma, "What is Design for Social Justice?", pages 1-30.
 	
    Supplementary reading: Riley, "3. Engineering and Social Justice", **Engineering and Social Justice**, pages 47-106.
 	
(14)(15) First philosophical theoretical framework for analyzing and evaluating the technological culture of the times.
 	
    READING ASSIGNMENT: Tijmes, "Albert Borgmann: Technology and the Character of Everyday Life", **American Philosophy of Technology**, pages 11-36.
 	
(16)(17) Developing writing and research skills
 	
Groups/teams of four read and react among themselves and on their own to one of their own evaluated first essays. Each member has been assigned one part to write up comments on how to improve on the corresponding challenge. In session 16, the students in the different groups assigned to each challenge meet to develop a presentation on proficiency in that particular challenge. The four presentations are delivered and discussed in class.
 	
(18) Introductory concepts of thermodynamics
 	
    READING ASSIGNMENT: passages from Riley, **Engineering Thermodynamics and 21st Century Energy Problems: A Textbook Companion for Student Engagement** (to be assigned)
 	
(19)(20) Bringing wellbeing into development practice
 	
    READING ASSIGNMENT: Castro Sitiriche and Jiménez Rodríguez, "Responsible Wellbeing and Energy Threshold", pp. 64-126.
 	
    Supplementary reading: White, "Bringing Wellbeing into Development Practice. Working Paper", pages 1-32.
 	
(21)(22) Second philosophical theoretical framework for analyzing and evaluating the technological culture of the times. An approach from the periphery.
 	
    READING ASSIGNMENT: Huyke Souffront, "La sustitución de las cercanías por lo lejano", pages 107-124.
 	
    Supplementary reading: Turkle, "Education", pages 211-248.
	PROJECT PROGRESS REPORT
	By session 17, groups/teams of four should submit a project report focusing on the actions in progress.

**Second short essay on
an aspect of a theoretical framework
discussed in this second part of the course, sessions 12 through 22
(three to four pages, double spaced, 10 points)**

1.This short essay is to be done individually.

2.For help in conceiving and writing this essay, refer to point 3 in **MODES OF EVALUATION**, pages 4 through 6 of this syllabus, and refer to the **GUIDE TO THINK THINGS THROUGH** and the **DIAGRAM ON PUTTING THE PARTS IN ORDER** in pages 13 and 14.

3.Grapar al final del trabajo la hoja con la tabla de evaluación que los profesores han provisto, y llenar los espacios que corresponden a la autoevaluación del segundo trabajo.

Todo trabajo deberá ser entregado impreso a doble espacio, en letra comparable en tamaño a la de este prontuario, grapado, sin cartapacio, y en la fecha asignada:

Fecha límite:

THIRD PART	SPACE FOR COMMENTS
(23)(24) Introductory concepts of structures and materials (25)(26) Ethical theory: Questions and issues on climate change **READING ASSIGNMENT:** Jamieson, "The Frontiers of Ethics", pages 144-177. (27)(28) Technology innovation and human progress	

**Research essay related to long term action project on
one or various aspects of a theoretical framework
discussed in the course
(five to six pages double spaced, 20 points)**

1.For help in conceiving and writing this essay, refer to point 3 in **MODES OF EVALUATION**, pages 4 through 6 of this syllabus, and refer to the **GUIDE TO THINK THINGS THROUGH** and the **DIAGRAM ON PUTTING THE PARTS IN ORDER** in pages 13 and 14.

2.This research essay is to be done by the group/teams.

3.**Report on the research and the group process:** As part of the work, the group/team will submit a report summarizing the research on the case which describes the interaction in the meetings, and the contribution of each member. This report will be signed by each group member.

4.Grapar al final del trabajo las cuatro hojas con las tablas de evaluación de los cuatro estudiantes y llenar los espacios que corresponden a la autoevaluación del tercer trabajo.

Todo trabajo deberá ser entregado impreso a doble espacio, en letra comparable en tamaño a la de este prontuario, grapado, sin cartapacio, y en la fecha asignada:

Fecha límite:

VIII. GUIDE TO THINK THINGS THROUGH

First challenge: Focuses on and explains **an important aspect of a theoretical framework** discussed in class	Second challenge: Analyzes and develops **a case (a proposed change in the third essay),** based on that aspect of the theoretical framework, including independent research beyond the given class materials	Third challenge: Discusses **a possible weakness** of that aspect of the theoretical framework	Fourth challenge: **Deliberates in favor or against the framework** taking into account the case presented or, in the third essay, the experience with the action on the proposed change, and the possible weakness of the theoretical framework in discussion	Fifth challenge: Demonstrates **dedication, discipline and pride** in the written word
* Un marco teórico es una visión amplia y abstracta que sirve para el análisis o la evaluación de un asunto concreto. Los aspectos importantes de los marcos teóricos se discuten en clase. Asegúrate elegir el que más te interesa discutir, estés o no estés finalmente de acuerdo con su visión de los asuntos. * El mejor testimonio de que entiendes un *marco teórico* en discusión en la clase es que puedas presentar *un aspecto* del mismo y lo puedas explicar con claridad y en tus palabras, como hemos dicho, estés o no estés finalmente de acuerdo con su visión del asunto. * No elijas un aspecto de un marco teórico que no se haya discutido en clase. * Tampoco trates de discutir dos o más marcos teóricos de un tiro. *No le des vueltas al asunto: la pregunta que has de contestar en esta primera parte del trabajo es la siguiente: ¿Cómo este aspecto del marco teórico sirve para analizar o evaluar unos asuntos concretos? * Una vez tengas claro lo que quieres discutir, habrá que repasar unas notas de clase, acudir a los apuntes u anotaciones de alguno de los profesores, releer unos pasajes del texto, o quizás aclarar algo visitando algún profesor. * Debes ser breve al citar. Un ejemplo de como citar: 'Según Willoughby, ". . ." (p. 123).' Por lo general, debe haber una explicación tuya de la importancia del pasaje citado en el contexto de tu discusión. Esta explicación antecede a la cita, o le sigue. Tú llevas el argumento; la cita no te sustituye en tu tarea. * El próximo reto es traer un caso que cuadre y que sea favorable a lo planteado en este primer párrafo (ver próxima columna).	* Este segundo reto es el equivalente en redacción del laboratorio donde se ha verificado una hipótesis científica. Aquí es donde pones al marco teórico en práctica, lo pones a funcionar. * Para nuestros propósitos, un *caso* es una historia real en la que se puede palpar el mejor aspecto o la validez del aspecto del marco teórico que has elegido discutir. Los casos se presentan en clase. Debes escoger uno que se preste favorablemente al aspecto del marco teórico en discusión. De no ser uno de los casos discutidos en clase, debes incluir referencias o evidenciar lo narrado. *Para servir de caso,,el mismo debe ilustrar o ejemplificar en forma concreta, sensible y específica lo que ya en el primer párrafo has dicho a favor del marco teórico. Tu exposición del caso debe mostrar que se puede analizar o evaluar desde el punto de vista del marco teórico. *Tu propia vida es en ocasiones un buen banco de casos. Lo importante, como acabamos de indicar, es que tu exposición ilustre, que ejemplifique, es decir, que 'vaya' con el marco teórico, que 'cuadre' con lo que dicho marco propone. *Es muy posible que debas coordinar en alguna medida este caso favorable con la debilidad que deseas discutir como próximo paso.. La temática en la debilidad, el tercer paso, no puede ser ajena a lo discutido en los párrafos anteriores. *No confundas los casos con meras analogías. Cuando algo es análogo a otra cosa, es sólo parecido a esa otra cosa. Las analogías no constituyen ejemplos, ni prueban nada a favor o en contra de la validez de un marco teórico. Los casos, por el contrario, son precisamente 'casos' de lo que se plantea en el marco teórico y su explicación. Los casos son ejemplos, o 'aplicaciones', como a veces decimos.	* No vayas aquí a traer algo simplemente malo, triste, terrible, feo, desgraciado, extraño, o negativo. Se trata de *una posible debilidad del aspecto del marco teórico* en discusión. * La idea es traer *un posible problema para el marco teórico*; traer algo que al menos parece mostrar que el mismo no es satisfactorio; algo que quizás no 'cabe' y debería caber, no 'cuadra' y debería cuadrar; algo que quizás no 'va' con el marco teórico y debe ir con un marco teórico que presuntamente atiende los asuntos que ese marco teórico desea atender. * Si según el marco teórico itodos los X deben hacer Y cosa, que casi ningún X haga Y cosa, no es posible debilidad del marco, puesto que el mismo no es acerca de lo que los X hacen o no hacen, sino que es acerca de lo que los X deben hacer. * Según ya indicado, la posible debilidad puede estar coordinada en alguna manera con la narrativa favorable (ver columna anterior). Quizás es una forma diferente de interpretar esa narrativa, o incluye una variante de esa narrativa que presenta un posible problema para la propuesta. * Si finalmente no estás de acuerdo con la posible debilidad, es importante desligarte de ella. Por ejemplo, podrías comenzar este párrafo diciendo que hay quién no concuerda con el marco teórico en discusión y el argumento de *esas personas* es tal y tal.	* Si resulta que la posible debilidad que has traído a la discusión no te convence, entonces evidentemente el marco teórico se sostiene. Es decir, el marco teórico resiste lo presuntamente problemático. Si la presunta debilidad te convence, pues estás en contra del marco teórico. La propuesta no se sostiene por la razón que has de incluir en este párrafo. *Si estás a favor del marco teórico: ¿Por qué? Si estás en contra: ¿Por qué? Si estás a favor de este punto y en contra de aquel: ¿Por qué estás a favor de lo uno y en contra de lo otro? *Que se vea que has tenido que pensar el asunto que te plantea el marco teórico, que el trabajo te ha hecho pensar –que de veras has llevado el marco teórico al 'laboratorio' de la reflexión filosófica. *En un buen trabajo se debe poder palpar que le das importancia a lo que estás discutiendo.	* Es bien sencillo: pon tu esfuerzo en redactar bien. ¿No es para sobresalir que venimos a la universidad? * Muestra que has pensado con detenimiento el material leído; que captas el detalle y su diferencia, que no estás meramente compartiendo ideas generales que ya llevabas contigo antes de tomar la clase. * Hacia el final del proceso de redactar, debes elegir un título para tu obra que capte el giro o el punto central de tu trabajo. * Busca el tiempo para hacer una lectura y revisión final del trabajo antes de entregarlo. Casi siempre es mejor al otro día de terminar un primer borrador.

IX. DIAGRAM ON PUTTING THE PARTS IN THE RIGHT ORDER

título
(véase el tercer punto del quinto reto en la GUÍA)

Primera parte
la presentación de un aspecto de un marco teórico
¿Cómo este aspecto del marco teórico tal y tal sirve para analizar o evaluar unos asuntos concretos?

(*"Según . . ., . . ."*, véase primer reto)

Segunda parte
la exposición de uno o varios casos favorables al marco teórico
¿Qué caso me sirve para analizar o evaluar desde el marco teórico?

(*"Para ejemplificar esto, pensemos . . ."*, véase segundo reto)

Tercera parte
discusión de una posible debilidad del marco teórico
¿Por qué esto otro no parece ir con el marco teórico?

(*"Hay quién señalaría, sin embargo, . . . "*, véase tercer reto)

Cuarta parte
la deliberación en torno al marco teórico
¿Por qué, cómo o hasta qué punto se sostiene el marco teórico, o por qué y cómo no se sostiene?

(*"Nuestro juicio es que . . ."*, véase cuarto reto)

EVALUATION TABLE AND COMMENTS FROM THE PROFESSORS
INTD 3990: Technology, Justice and Wellbeing

Student's name:_____

Grading: 10 = superior mastery; 9 = full mastery; 8 = meets the challenge; 7 = apprentice; 6 = insufficient effort or challenge(s) poorly understood; 5, 4, . . . = deficient effort or challenge(s) not understood

Challenge	First essay 10 points (individual)	Second essay 10 points (individual)	Research essay related to long term action project 20 points (group/team of four)
Focuses on and explains **an important aspect of a theoretical framework** discussed in class (possibly more than one framework in third essay)	self-evaluation____/10 final evaluation____/10	self-evaluation____/10 final evaluation____/10	self-evaluation_____/20 final evaluation ____/20
Analyzes and develops **a case (a proposed change in the third essay),** based on that aspect of the theoretical framework, including independent research beyond the given class materials	self-evaluation____ /10 final evaluation____/10	self-evaluation_____/10 final evaluation____/10	self-evaluation_____/20 final evaluation_____/20
Discusses **a possible weakness** of that aspect of the theoretical framework	self-evaluation____/10 final evaluation____/10	self-evaluation_____/10 final evaluation____/10	self-evaluation_____/20 final evaluation____/20
Deliberates in favor or against the framework taking into account the case presented or, in the third essay, the experience with the action on the proposed change, and the possible weakness of the theoretical framework in discussion	self-evaluation____/10 final evaluation____/10	self-evaluation_____/10 final evaluation____/10	self-evaluation_____/20 final evaluation____/20
Demonstrates **dedication, discipline and pride** in the written word	self-evaluation____/10 final evaluation____/10	self-evaluation____ /10 final evaluation____/10	self-evaluation_____/20 final evaluation_____/20
The group/team carried out the proposed action making appropriate adjustments when needed	(not applicable)	(not applicable)	self-evaluation____/20 final evaluation____/20
Overall grade for each essay (the sum of the grades for each of the challenges divided by the number of challenges and rounded)	self-evaluation____/10 final evaluation____/10	self-evaluation_____/10 final evaluation____/10	self-evaluation____ /20 final evaluation____/20

Evaluating professor's comments:		

**Incluir esta hoja con la evaluación y los comentarios de los profesores
al final de cada trabajo e ir añadiendo la autoevaluación que corresponde**

Universidad de Puerto Rico en Mayagüez
Decanato de Asuntos Académicos

SELF-EVALUATION ON CLASS PARTICIPATION
INTD 3990: Technology, Justice and Wellbeing

Student's name:_____

Date:_____

(1) Describe your general participation throughout the course. You may also want to highlight particular days in which you contributed most to the class discussions:

Based on this description, in general terms, it is my judgment that I collaborated . . .
. . . decisively in the discussion of the texts (20 points)
. . . regularly in the discussion of the texts (18-19 points)
. . . with the discussion of the texts (16-17 points)
. . . not very much, but kept up with the readings and mainly listened attentively (14-15 points)
. . . not much, but generally kept up with the readings (12-13 points)
. . . not sufficiently, and was unable to generally keep up with the readings (11 points or less)

Grade recommended:_____

(2) Describe what you think were the most important contributions to the class discussions made by two of your fellow students (please include the names):