PHIL3910 - Technology and Human Values

Course Outline

Course Co-ordinator: Dr Yin Gao
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Consultation hours: Monday 3-5pm

Semester: Semester 1 - 2008
Unit Weighting: 10
Teaching Methods: Lecture and tutorial

Brief Course Description
Teaches the nature and systematic analysis of normative design decisions, in particular in engineering, in the context of a systems dynamic approach to modeling. It sets that study in a larger framework of analysis of Western commercial, political and social systems and their functioning, and of the professional ethics that flow from that.

Contact Hours
Lecture for 2 Hours per Week for the Full Term
Tutorial for 2 Hours per Fortnight for 6 Weeks
One tutorial for organization in week two (for all students) followed by five two-hour fortnightly tutorials, PLUS a Quiz in week 7.

Required Texts
J. Porritt, 2005, Capitalism as if the World Matters, London: Earthscan

Availability: The Notes are available from the NUSA Printer. They are also available through the Auchmuty Library Short Loans online, in pdf file format. You may copy them as you need, but note that they are specially prepared notes and should be used only for your personal study in this course and not be used for any other purpose. Capitalism as if the World Matters is available with United Campus Bookshop.
Complementary reading:

In addition to the required texts, supplementary recommended reading is provided on short loans for each segment of the course. Most are available via the Internet at Short Loans Online (http://library.newcastle.edu.au/press SHORT LOANS) for each segment of the course. The correspondences between readings and topics are listed on the syllabus below. Whilst you are not required to read this material, many students will find it helpful to clarify points made in lectures, as well as for the preparation of assignments and exams. Full references follow:


Course Objectives

(1) to give students a knowledge of the nature and basic principles of normative design decisions, in particular in engineering, in the context of a systems dynamic approach to modeling.

(2) to impart to students the skills required for them to be able to engage in critical assessment of design practice and in design problem solving that meets larger societal expectations as well as those of good engineering design.

(3) to enable students to effectively communicate their understanding and to interact effectively so as to problem solve with diverse communal groups.

(4) to provide students a critical appreciation of the larger framework of Western commercial, political and social systems within which engineering practice operates, and of the professional ethics that flow from that.

Course Content

The course covers the nature of norms and their application, basic principles of dynamic systems and of the choice of systems models and analyses and their normative dimensions (e.g. robustness criteria), analyses of major societal systems and their normative character and impacts, including engineering design, analyses of important normative design assessment tools (such as impact assessment, social and economic critiques), and an introduction to principled professional ethics.

Assessment Items

<table>
<thead>
<tr>
<th>Essays / Written Assignments</th>
<th>Tutorial Assignment, (750 words), 10%, is to help students start on normative, not just factual, analysis of engineering design problems, and will also sharpen critical and communication skills.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essays / Written Assignments</td>
<td>Group Project (3,000-4,000 words), 20%, provides opportunity to develop and extended normative design analysis and consists of 4-6 students getting together to produce a coherent account on one topic. This will demonstrate the application of both knowledge and skills, and provides experience in performing multi-tasking group work.</td>
</tr>
<tr>
<td>Examination: Formal</td>
<td>Examination, (2 hours), 50%, evaluates the depth and systematicity of student understanding of basic principles and how to apply them.</td>
</tr>
<tr>
<td>Group/tutorial participation and contribution</td>
<td>Tutorial Participation, 10%, allows assessment and feedback on developing knowledge of subject and on developing critical capacity to analyse and argue issues in the subject. Attendance will be taken and tutors will assess</td>
</tr>
</tbody>
</table>
contribution to discussion.

Quiz - Tutorial Tutorial Quiz, (20 minutes), 10%, assesses students’ understanding of several key concepts introduced in the first five weeks of the course.

Assumed Knowledge
60 units of successfully completed subjects

Class Timetable

<table>
<thead>
<tr>
<th>Lecture and Tutorial</th>
<th>Wednesday 18:00 - 20:00</th>
<th>[BASDEN]</th>
<th>Weeks 3, 5, 9, 11 &amp; 13 only.</th>
</tr>
</thead>
<tbody>
<tr>
<td>or</td>
<td>Wednesday 14:00 - 16:00</td>
<td>[EF20]</td>
<td>Weeks 3, 5, 9, 11 &amp; 13 only.</td>
</tr>
<tr>
<td>or</td>
<td>Wednesday 14:00 - 16:00</td>
<td>[EF20]</td>
<td>Weeks 4, 6, 8, 10 &amp; 12 only.</td>
</tr>
<tr>
<td>or</td>
<td>Wednesday 14:00 - 16:00</td>
<td>[SRLT1]</td>
<td>Wk 2-Intro &amp; Wk 7-Quiz only</td>
</tr>
<tr>
<td>or</td>
<td>Wednesday 11:00 - 13:00</td>
<td>[ES305]</td>
<td>Wk 2-Intro &amp; Wk 7-Quiz only</td>
</tr>
</tbody>
</table>

Syllabus

<table>
<thead>
<tr>
<th>WEEK</th>
<th>TOPIC</th>
<th>READING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction</td>
<td>Hooker &amp; Herfel: Introduction</td>
</tr>
<tr>
<td>2</td>
<td>Value, System and Design: Value and Value Inquiry</td>
<td>Hooker &amp; Herfel: Section II</td>
</tr>
<tr>
<td>3</td>
<td>Value, System and Design: Value and Design</td>
<td>Hooker &amp; Herfel: Section II; Frank: ch 2, 9 &amp; 10</td>
</tr>
<tr>
<td>4</td>
<td>Thermodynamics, Life and Ecosystem</td>
<td>Hooker &amp; Herfel: Section I; Rolle: P. 229-30; Grigori Nicolis: p.316-47</td>
</tr>
<tr>
<td>5</td>
<td>Non-linearity, Feedback and Stability</td>
<td>Hooker &amp; Herfel: Section I; Gunderson and Holling, ch 2.</td>
</tr>
<tr>
<td>6</td>
<td>Liberal Value and Social Dynamics</td>
<td>Hooker &amp; Herfel: Section III</td>
</tr>
<tr>
<td>7</td>
<td>Market Dynamics: Feedback and the Free Market</td>
<td>Hooker &amp; Herfel: Section IV.1; Arthur Ch 1</td>
</tr>
<tr>
<td>8</td>
<td>Group project</td>
<td>Jonathon Porritt: Intro &amp; part I or Intro &amp; part II or Intro &amp; part III; Perfect Order Ch 3</td>
</tr>
</tbody>
</table>

Semester Break

| 9    | Economy and Society I: Market Dynamics and Society | Hooker & Herfel: Section IV.1; Daly Ch 2 |
| 10   | Economy and Society II: Technology Innovation and Social Changes | Hooker & Herfel: Section V.2-4 |
| 11   | Technological Decision Making: Forecasting and Back-casting | Hooker & Herfel: Section V.1-4 |
Plagiarism

University policy prohibits students plagiarising any material under any circumstances. A student plagiarises if he or she presents the thoughts or works of another as one's own. Without limiting the generality of this definition, it may include:

- copying or paraphrasing material from any source without due acknowledgment;
- using another's ideas without due acknowledgment;
- working with others without permission and presenting the resulting work as though it was completed independently.

Plagiarism is not only related to written works, but also to material such as data, images, music, formulae, websites and computer programs.

Aiding another student to plagiarise is also a violation of the Plagiarism Policy and may invoke a penalty.

For further information on the University policy on plagiarism, please refer to the Policy on Student Academic Integrity at the following link -


The University has established a software plagiarism detection system called Turnitin. When you submit assessment items please be aware that for the purpose of assessing any assessment item the University may -

- Reproduce this assessment item and provide a copy to another member of the University; and/or
- Communicate a copy of this assessment item to a plagiarism checking service (which may then retain a copy of the item on its database for the purpose of future plagiarism checking).
- Submit the assessment item to other forms of plagiarism checking

Written Assessment Items

Students may be required to provide written assessment items in electronic form as well as hard copy.

Extension of Time for Assessment Items, Deferred Assessment and Special Consideration for Assessment Items or Formal Written Examinations

Students are required to submit assessment items by the due date, as advised in the Course Outline, unless the Course Coordinator approves an extension of time for submission of the item. University policy is that an assessment item submitted after the due date, without an approved extension, will be penalised.

Any student:

1. who is applying for an extension of time for submission of an assessment item on the basis of medical, compassionate, hardship/trauma or unavoidable commitment; or
2. whose attendance at or performance in an assessment item or formal written examination has been or will be affected by medical, compassionate, hardship/trauma or unavoidable commitment;

must report the circumstances, with supporting documentation, to the appropriate officer following the instructions provided in the Special Circumstances Affecting Assessment Procedure - Policy 000641.

Note: different procedures apply for minor and major assessment tasks.

Students should be aware of the following important deadlines:

- **Requests for Special Consideration** must be lodged no later than 3 working days after the due date of submission or examination.

- **Requests for Extensions of Time on Assessment Items** must be lodged no later than the due date of the item.

- **Requests for Rescheduling Exams** must be received in the Student Hub no later than ten working days prior the first date of the examination period.

Your application may not be accepted if it is received after the deadline. Students who are unable to meet the above deadlines due to extenuating circumstances should speak to their Program Officer in the first instance.

**Changing your Enrolment**

The last dates to withdraw without financial or academic penalty (called the HECS Census Dates) are:

For semester 1 courses: 27 March 2008

For semester 2 courses: 31 August 2008

Students may withdraw from a course without academic penalty on or before the last day of semester. Any withdrawal from a course after the last day of semester will result in a fail grade.

Students cannot enrol in a new course after the second week of semester/trimester, except under exceptional circumstances. Any application to add a course after the second week of semester/trimester must be on the appropriate form, and should be discussed with staff in the Student Hubs.

To check or change your enrolment online, please refer to myHub - Self Service for Students [https://myhub.newcastle.edu.au](https://myhub.newcastle.edu.au)

**Faculty Information**

The Student Hubs are a one-stop shop for the delivery of student related services and are the first point of contact for students on campus.

The four Student Hubs are located at:

**Callaghan campus**

- Shortland Hub: Level 3, Shortland Union Building
- Hunter Hub: Student Services Centre, Hunter side of campus

**City Precinct**

- City Hub & Information Common: University House, ground floor in combination with an Information Common for the City Precinct

**Ourimbah campus**

- Ourimbah Hub: Administration Building

**Faculty websites**

**Faculty of Business and Law**


**Faculty of Education and Arts**
http://www.newcastle.edu.au/faculty/education-arts/
Faculty of Engineering and Built Environment

http://www.newcastle.edu.au/faculty/engineering/
Faculty of Health

http://www.newcastle.edu.au/faculty/health/
Faculty of Science and Information Technology

http://www.newcastle.edu.au/faculty/science-it/

Contact details

Callaghan, City and Port Macquarie
Phone: 02 4921 5000
Email: EnquiryCentre@newcastle.edu.au

Ourimbah
Phone: 02 4348 4030
Email: EnquiryCentre@newcastle.edu.au

The Dean of Students
Resolution Precinct
Phone: 02 4921 5806
Fax: 02 4921 7151
Email: resolutionprecinct@newcastle.edu.au

Deputy Dean of Students (Ourimbah)
Phone: 02 4348 4123
Fax: 02 4348 4145
Email: resolutionprecinct@newcastle.edu.au

Various services are offered by the University Student Support Unit:

Alteration of this Course Outline

No change to this course outline will be permitted after the end of the second week of the term except in exceptional circumstances and with Head of School approval. Students will be notified in advance of any approved changes to this outline.

Web Address for Rules Governing Undergraduate Academic Awards

Web Address for Rules Governing Postgraduate Academic Awards

Web Address for Rules Governing Professional Doctorate Awards

STUDENTS WITH A DISABILITY OR CHRONIC ILLNESS

The University is committed to providing a range of support services for students with a disability or chronic illness.
If you have a disability or chronic illness which you feel may impact on your studies, please feel free to discuss your support needs with your lecturer or course coordinator.

Disability Support may also be provided by the Student Support Service (Disability). Students must be registered to receive this type of support. To register please contact the Disability Liaison Officer on 02 4921 5766, or via email at: student-disability@newcastle.edu.au

As some forms of support can take a few weeks to implement it is extremely important that you discuss your needs with your lecturer, course coordinator or Student Support Service staff at the beginning of each semester.

For more information related to confidentiality and documentation please visit the Student Support Service (Disability) website at: www.newcastle.edu.au/services/disability

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TUTORIAL WORKSHOPS

Periodically during class time we will break into small groups for tutorial workshops. At the first meeting tutorial procedures and assignments will be explained, and we will organise the work groups of 4-6 students. These workgroups will form the basis for informal tutorial activities, as well as for the group assignment.

TUTORIAL ASSESSMENT

Assessment in tutorials will be based on three components:

1. **Participation.** *Tutorials participation is designed to involve students in discussing and applying the course concepts and principles to obtain an effective working grasp of them.* Prepared and thoughtful participation in tutorial discussions will help you succeed in this course. To encourage this, 10% of your final grade is based on tutorial participation. Students are assessed on their attendance, understanding and application of the knowledge provided in the course as well as their presentation performance as a team. Students can ask tutor for their assessment at the end of each tutorial class.

2. **Quiz.** *The quiz is designed to test the students’ grasp of the foundational concepts of the course.* The quiz, worth 10%, will last 20 minutes. You will be asked to explain several key concepts introduced in the first six weeks of the course. Each question will be of equal weight and common mistakes will be addressed in a lecture following the quiz.

3. **Assignment.** *The tutorial assignment is designed to help students start on normative, and not just factual, analysis of engineering design problems.* The assignment, worth 10% of your final grade, will require you to follow, in newspapers and periodicals, some current issue or event concerning the content of this course, e.g. ozone depletion, nuclear energy and other renewable energy, technological transfer to developing nations, photovoltaics, desalination or water recycling, etc. From time to time articles that we have seen over the course of the week will be pointed out at the beginning of each lecture. You should read several articles on your chosen topic (at least one per week) and keep a log (or, better yet, electronic copies of clippings). It would be best to keep abreast of several issues at the outset, until you get an idea that will end up with sustained coverage. You will submit (MS WORD or RTF format) on the due date a 750-word report summarizing and analysing of the normative elements (i.e. those involving value judgments) of your chosen issue, making explicit reference to at least two articles, along with your clippings to the school’s student Hub. These will be assessed, receiving a mark out of ten (n/10) using the following rationale:

   No assignment submitted: 0
   This is not a sincere attempt at the assignment: 2/10
   This provides an inarticulate summary with no attempt at normative analysis: 3/10
   This is a good, well-organised summary but with little or no sensitivity to normative issues: 4-5/10
   There is an adequate summary with some attempt to identify norms: 5-6/10
Very good, well organised discussion with some attempt to identify norms: 6-7/10

Good identification of norms; some good analytical points: 7-8/10

Particularly well-organised, good normative analysis: 8-9/10

Exemplary discussion >9/10

GROUP PROJECT

The group project is designed to provide an opportunity to develop an extended normative design analysis, demonstrating the application of both knowledge and skills, and provides experience in performing multi-tasking group work.

The objective of the group project is to provide a normative discussion of social and economic system design, policy design found in *Capitalism as if the World Matters*. Students can choose to analyse one of the three parts of the book. In order to do this you are required to read the introduction and the part of the book you choose to analyse.

In general, in your Group Project you should consider the following questions:

- What values underlie social and economic system design and policy design?
- What moral, social, political, economic and environmental issues must be decided before a reasoned judgment of acceptability can be made?
- How should environmental quality, economic value, and social quality of life be taken into account in the design of social and economic systems?
- How should conflicts among such considerations be dealt with?
- Do the authors of *Capitalism as if the World Matters* provide an effective framework for making design decisions?
- What criticisms can you make of *Capitalism as if the World Matters*, particularly for improving its decision framework?

Report Structural Requirements

The following provides some minimum specifications for the report structure. Some of the following requirements are mandatory (indicated by the use of the term “must”) and some are advisory, but highly recommended (indicated by the use of the term “should”). Any report that does not comply to the mandatory structural specifications will be asked to be resubmitted until it does comply.

The 3000-4000-word project should be typed double-spaced on A4 paper.

The report must be divided into sections, separated by clearly labelled section headings. The sections must include an introductory and a concluding section, and no single section (subsection) should be longer than 1000 words.

The introductory section should contain an outline of the rest of the report and it should also include a summary of the main points in each section. Each section should contain at least either (if not both) an introductory or (and) concluding paragraph, that summarises the main point(s) of the section and provides a brief outline of its main arguments.

Procedure: You will be assigned to tutorial work groups and will select a group leader and co-leader. You will all take equal final responsibility for the group report.

It is suggested that at least four group meetings will be required:

1. A few minutes to elect leader and co-leader, and to decide how your group will cooperate. Set a date for meeting 2.

2. A longer meeting to discuss and assign to each member what is to be researched and initial reading.
3. A longer meeting to present, discuss and organise research findings. Agree on points to be made and assign writing tasks.

4. A meeting just prior to the due date. Hear and prepare the final group report in writing. Group leader to take responsibility for presentation of the report on time.

Beware: While distributing the labour for this assignment by each member taking a separate chapter or other reading, may be a useful strategy as a start, the issues raised are interconnected, and groups should produce an integrated analysis. Therefore, group members should discuss the issues with all members providing input into the final draft. Fragmented and repetitive reports will be downgraded accordingly.

EXAMINATION

This examination will comprise 3 essay questions. The exam will cover the basic principles and key data of the course, both textbooks and lectures. You will be able to prepare in advance the first question, which will be provided below. The second question will be selected from the questions provided for tutorial discussion throughout the term. Two questions will appear on the exam. You will be required to answer one. The third question will be designed to test your overall understanding and integration of the material, and it appears on no lists. **For the first question, you will be allowed to bring in a page with 45 words of notes (e.g. an outline for question 1) into the exam with you, printed as 9 lines with each line consisting only of 5 well-spaced English words.**

Your answers to each of these questions should focus on the principles or issues of value involved. The aim here is to take specific normative principles underlying major technological decisions, to state them clearly, to explore their involvement in technological decisions and to examine their strengths, limitations and controversial aspects or interpretations.

These essays are expected to be cogently argued, well researched and clearly presented. In your answer, you should:

1. Identify the issue(s) to be dealt with
2. Set out cogent factual information (briefly!)
3. Present honestly formed views (i.e. is not directed at telling the recipients what they desires to hear)
4. Argue to a conclusion

To answer each Question satisfactorily you will need to do some ADDITIONAL READING - e.g. found from the supplementary readings for the course sections, and/or the Short Loans list.

You should identify clearly which question you are addressing by stating both their number and sufficient key words to unambiguously identify them. Students are invited to consult the lecturer and tutors on the structure and content of the essays.

Question 1
Discuss the concept of Appropriate Technology. What factors need to be considered to determine whether a technology is appropriate? Work through an example in some detail showing how it is appropriate or inappropriate in a particular context.

Assessment and Key dates

<table>
<thead>
<tr>
<th>Task</th>
<th>Weight</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tutorial Participation</td>
<td>10%</td>
<td>Throughout</td>
</tr>
<tr>
<td>Tutorial Quiz</td>
<td>10%</td>
<td>2 April</td>
</tr>
<tr>
<td>Tutorial Assignment</td>
<td>10%</td>
<td>11 April</td>
</tr>
<tr>
<td>Group Project</td>
<td>20%</td>
<td>21 May</td>
</tr>
<tr>
<td>Examination</td>
<td>50%</td>
<td>11 June</td>
</tr>
</tbody>
</table>

Online Tutorial Registration:

Students are required to enrol in the Lecture and a specific Tutorial time for this course via the Online Registration system. Refer - [http://studinfo1.newcastle.edu.au/rego/stud_choose_login.cfm](http://studinfo1.newcastle.edu.au/rego/stud_choose_login.cfm)

NB: Registrations close at the end of week 2 of semester.

Studentmail and Blackboard: Refer - [www.blackboard.newcastle.edu.au/](http://www.blackboard.newcastle.edu.au/)

This course uses Blackboard and studentmail to contact students, so you are advised to keep your email accounts within the quota to ensure you receive essential messages. To receive an expedited response to queries, post questions on the Blackboard discussion forum if there is one, or if emailing staff directly use the course code in the subject line of your email. Students are advised to check their studentmail and the course Blackboard site on a weekly basis.

Important Additional Information

Details about the following topics are available on your course Blackboard site (where relevant). Refer - [www.blackboard.newcastle.edu.au/](http://www.blackboard.newcastle.edu.au/)

- Written Assignment Presentation and Submission Details
- Online copy submission to Turnitin
- Penalties for Late Assignments
- Special Circumstances
- No Assignment Re-submission
- Re-marks & Moderations
- Return of Assignments
- Preferred Referencing Style
- Student Representatives
- Student Communication
- Essential Online Information for Students