

## Tamkang University Academic Year 102, 1st Semester Course Syllabus

Course Title	GLOBAL TECHNOLOGY REVOLUTION	Instructor	YANG LUNG-JIEH
Course Class	TGUYB0A , 0A	Details	<ul style="list-style-type: none"> <li>◆ Required</li> <li>◆ One Semester</li> <li>◆ 2 Credits</li> </ul>
Academic teaching objectives			
<p>Students will understand recent development of modern science and technology and its impact on human society and global environment. Through the design of course students will also be familiar with broadly-based fundamental technical knowledge and improve.</p>			
Schoolwide essential virtues			
<ul style="list-style-type: none"> <li>A. A global perspective.</li> <li>B. Information literacy.</li> <li>C. A vision for the future.</li> <li>D. Moral integrity.</li> <li>E. Independent thinking.</li> <li>F. A cheerful attitude and healthy lifestyle.</li> <li>G. A spirit of teamwork and dedication.</li> <li>H. A sense of aesthetic appreciation.</li> </ul>			
Course Introduction	<p>The course presents an introduction to the historical background and general aspects of the global technological revolutions in quantum, information and biochemical technologies. The potential impacts of these technologies including micro-system technology and nanotechnology in the future will be also mentioned. The points of our discussion include environmental and energy problems as well.</p>		

## The Relevance among Teaching Objectives, Objective Levels and Schoolwide essential virtues

I.Objective Levels (select applicable ones) :

- (i) Cognitive Domain : C1-Remembering, C2-Understanding, C3-Applying,  
C4-Analyzing, C5-Evaluating, C6-Creating
- (ii) Psychomotor Domain : P1-Imitation, P2-Mechanism, P3-Independent Operation,  
P4-Linked Operation, P5-Automation, P6-Origination
- (iii) Affective Domain : A1-Receiving, A2-Responding, A3-Valuing,  
A4-Organizing, A5-Charaterizing, A6-Implementing

II.The Relevance among Teaching Objectives, Objective Levels and Schoolwide essential virtues :

- (i) Determine the objective level(s) in any one of the three learning domains (cognitive, psychomotor, and affective) corresponding to the teaching objective. Each objective should correspond to the objective level(s) of ONLY ONE of the three domains.
- (ii) If more than one objective levels are applicable for each learning domain, select the highest one only. (For example, if the objective levels for Cognitive Domain include C3,C5,and C6, select C6 only and fill it in the boxes below. The same rule applies to Psychomotor Domain and Affective Domain.)
- (iii) Determine the Schoolwide essential virtues that correspond to each teaching objective. Each objective may correspond to one or more Schoolwide essential virtues at a time. (For example, if one objective corresponds to three Schoolwide essential virtues: A,AD, and BEF, list all of the three in the box.)

No.	Teaching Objectives	Relevance	
		Objective Levels	Schoolwide essential virtues
1	The students will be able to understand the historical background, basic concepts, principles of application and future perspectives of global technologies, and realize its influences and potential impacts on energy and high tech, such as nanotechnology and biomedical technology, etc.	C2	ABCEG
2	The students shall be aware of the development, status and future trends of the major areas of technology.	C2	ABCEG
3	The students shall be able to recognize that many of the social and environmental changes are due to the evolution of technology; then, they may reasonably address kinds of issues, either occurring or potential, in social, ethical, environmental or energy, etc. aspects.	C2	ABCEG

### Teaching Objectives, Teaching Methods and Assessment

No.	Teaching Objectives	Teaching Methods	Assessment
1	The students will be able to understand the historical background, basic concepts, principles of application and future perspectives of global technologies, and realize its influences and potential impacts on energy and high tech, such as nanotechnology and biomedical technology, etc.	Lecture, Discussion	Written test, Report, Participation

2	The students shall be aware of the development, status and future trends of the major areas of technology.	Lecture, Discussion	Written test, Report, Participation
3	The students shall be able to recognize that many of the social and environmental changes are due to the evolution of technology; then, they may reasonably address kinds of issues, either occurring or potential, in social, ethical, environmental or energy, etc. aspects.	Lecture, Discussion	Written test, Report, Participation

### Course Schedule

Week	Date	Subject/Topics	Note
1	102/09/16 ~ 102/09/22	Middel Sping Festival	no class
2	102/09/23 ~ 102/09/29	Chapter 1: Birth of Universe	no class, moved to 10/10
3	102/09/30 ~ 102/10/06	Chapter 2: Exploring Outer Space	
4	102/10/07 ~ 102/10/13	National Day	make-up for 9/26
5	102/10/14 ~ 102/10/20	Chapter 3: Ecological Environment	
6	102/10/21 ~ 102/10/27	Chapter 4: Energy Technology	
7	102/10/28 ~ 102/11/03	Chapter 5: Small Technology	
8	102/11/04 ~ 102/11/10	Chapter 6: Information Technology (IT)	
9	102/11/11 ~ 102/11/17	Chapter 7: IT and Web	
10	102/11/18 ~ 102/11/24	Midterm Exam Week	
11	102/11/25 ~ 102/12/01	Chapter 8: Artificial Intelligence (AI) and Robotics & presentation of group 1	
12	102/12/02 ~ 102/12/08	Chapter 8: AI and Robotics & presentation of group 2	
13	102/12/09 ~ 102/12/15	Chapter 9: Molecular Biology & presentation of group 3	
14	102/12/16 ~ 102/12/22	Chapter 9: Molecular Biology & presentation of group 4	
15	102/12/23 ~ 102/12/29	Chapter 10: Biomedical Technology & presentation of group 5	

16	102/12/30~ 103/01/05	Chapter 10: Biomedical Technology & presentation of group 6	
17	103/01/06~ 103/01/12	Review of chapter 8-10 & presentation of group 7	
18	103/01/13~ 103/01/19	Final Exam Week	
Requirement	<p>1.(Attendance) According to the rule of Tamkang University, one who is absent beyond 1/3 of the whole class time is not allowed for attending the final exam. One time of absence at any roll call will lose him/her 2 scores.</p> <p>2.(Mark of usual) All students in this class are divided into 7 groups (assigned in Oct. 03.) Each group is scheduled to give an oral presentation of 30 min (3 min for each person) and they should hand in one integrated paper report. The title and the content of the presentation should be relevant to this course. The presentation score of each group is determined by the audience and Prof. Yang by 50%-50% weighting ratio. Additionally, each student should clearly mention his/her contribution to his/her group in the final term report.</p> <p>3.(Others) The questions of the mid-term test are designed by "all students in this class". Each group should figure out the class content of each topic and try to design their ideal exam questions. The leaders of the 7 groups are responsible for giving their proposed questions to Prof. Yang two weeks before the exams. These proposed questions of the mid-term will be opened to all students.</p>		
Teaching Facility	Computer		
Textbook(s)	Global Technology Revolution, edited by Lung-Jieh Yang		
Reference(s)	<p>You can download the textbook file from  <a href="http://tsp.ec.tku.edu.tw/QuickPlace/ljyang/PageLibrary4825705A002F9E0F.nsf/h_081F3C465D0F487B4825705A002FFEE5/44053DA20F225D6C48257BDA0009EF21/?OpenDocument">http://tsp.ec.tku.edu.tw/QuickPlace/ljyang/PageLibrary4825705A002F9E0F.nsf/h_081F3C465D0F487B4825705A002FFEE5/44053DA20F225D6C48257BDA0009EF21/?</a>  OpenDocument (not for commercial usage.)</p>		
Number of Assignment(s)	1 (Filled in by assignment instructor only)		
Grading Policy	<p>◆ Attendance : 10.0 %    ◆ Mark of Usual : 20.0 %    ◆ Midterm Exam : 30.0 %</p> <p>◆ Final Exam : 30.0 %</p> <p>◆ Other (mid-term questions) : 10.0 %</p>		
Note	<p>This syllabus may be uploaded at the website of Course Syllabus Management System at <a href="http://info.ais.tku.edu.tw/csp">http://info.ais.tku.edu.tw/csp</a> or through the link of Course Syllabus Upload posted on the home page of TKU Office of Academic Affairs at <a href="http://www.acad.tku.edu.tw/CS/main.php">http://www.acad.tku.edu.tw/CS/main.php</a> .</p> <p><b>※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.</b></p>		