NEW COURSE FORM

Signature Routing Log

General Information:

Course Prefix and Number: IS 202

Proposal Contact Person Name: Jeffrey Huber Phone: 7-2334 Email: jeffrey.huber@uky.edu

INSTRUCTIONS:

Identify the groups or individuals reviewing the proposal; note the date of approval; offer a contact person for each entry; and obtain signature of person authorized to report approval.

Internal College Approvals and Course Cross-listing Approvals:

Reviewing Group	Date Approved	Contact Person (name/phone/email)	Signature
SCIS Faculty	2/4/11	Jeff Huber / 7-2334 / jeffrey.huber@uky.edu	
Dean, CCIS	2/22/11	Dan O'Hair / 218 0290 / ohair@uky.edu	Dan O'Hair
		/ /	
		/ /	
		/ /	

External-to-College Approvals:

Council	Date Approved	Signature	Approval of Revision[6]
Undergraduate Council	3/22/2011	Sharon Gill Digitally signed by Sharon Gill DN: cn=Sharon Gill, o=Undergraduate Education, ou=Undergraduate Council, email=sgill@uky.edu, c=US Date: 2011.04.14 11:37:41 -04'00'	
Graduate Council			
Health Care Colleges Council			
Senate Council Approval		University Senate Approval	

Comments:

[6] Councils use this space to indicate approval of revisions made subsequent to that council's approval, if deemed necessary by the revising council.

NEW COURSE FORM

1.	**General Information.**					
a.	Submitted by the College of:	Communications and Information Studies		Today's Date:	2/4/11	
b.	Department/Division:	School of Library & Information Science				
c.	Contact person name:	Jeffrey T Huber	Email:	jeffrey.huber@uky.edu	Phone:	859-257.2334
d.	Requested Effective Date:	☐ Semester following approval	OR	☒ Specific Term/Year[1] :	Fall 2011	
2.	**Designation and Description of Proposed Course.**					
a.	Prefix and Number:	IS 202				
b.	Full Title:	Technologies for Information Services				
c.	Transcript Title (if full title is more than 40 characters):	_____				
d.	To be Cross-Listed[2] with (Prefix and Number):	_____				
e.	Courses must be described by <u>at least one</u> of the meeting patterns below. Include number of actual contact hours[3] for each meeting pattern type.					
	3.0 Lecture	_____ Laboratory[1]	_____ Recitation	_____ Discussion	_____ Indep. Study	
	_____ Clinical	_____ Colloquium	_____ Practicum	_____ Research	_____ Residency	
	_____ Seminar	_____ Studio	_____ Other – Please explain:	_____		
f.	Identify a grading system:	☒ Letter (A, B, C, etc.)	☐ Pass/Fail			
g.	Number of credits:	3				
h.	Is this course repeatable for additional credit?			YES ☐	NO ☒	
	If YES:	Maximum number of credit hours:	_____			
	If YES:	Will this course allow multiple registrations during the same semester?		YES ☐	NO ☐	
i.	Course Description for Bulletin:	This course is designed to teach the fundamental concepts of information technology in ways relevant to professional practice in informatics and the information professions. It explores applications of computers and networks to information problems. Included are features of hardware, types of software, commercial systems and search engines.				
j.	Prerequisites, if any:	_____				
k.	Will this course also be offered through Distance Learning?			YES[4] ☒	NO ☐	
l.	Supplementary teaching component, if any:	☐ Community-Based Experience	☐ Service Learning	☐ Both		
3.	**Will this course be taught off campus?**			YES ☐	NO ☒	

[1] Courses are typically made effective for the semester following approval. No course will be made effective until all approvals are received.

[2] The chair of the cross-listing department must sign off on the Signature Routing Log.

[3] In general, undergraduate courses are developed on the principle that one semester hour of credit represents one hour of classroom meeting per week for a semester, exclusive of any laboratory meeting. Laboratory meeting, generally, represents at least two hours per week for a semester for one credit hour. (from *SR 5.2.1*)

[4] You must *also* submit the Distance Learning Form in order for the proposed course to be considered for DL delivery.

NEW COURSE FORM

4.	**Frequency of Course Offering.**			
a.	Course will be offered (check all that apply):	☒ Fall	☐ Spring	☐ Summer
b.	Will the course be offered every year?		YES ☒	NO ☐
	If NO, explain:	_____		
5.	**Are facilities and personnel necessary for the proposed new course available?**		YES ☐	NO ☒
	If NO, explain:	Course is part of a proposed new minor in Information Studies. The proposal for the new minor includes a timeline for bringing new courses and new faculty positions on line to support the minor.		
6.	**What enrollment (per section per semester) may reasonably be expected?**	25		
7.	**Anticipated Student Demand.**			
a.	Will this course serve students primarily within the degree program?		YES ☒	NO ☐
b.	Will it be of interest to a significant number of students outside the degree pgm?		YES ☒	NO ☐
	If YES, explain:	Under new general education requirements, it is our belief that more students will be looking for appropriate electives to take. Information Studies will be relevant to most majors as information - storage, access and retrieval - will become an ever important commodity.		
8.	**Check the category most applicable to this course:**			
	☐ Traditional – Offered in Corresponding Departments at Universities Elsewhere			
	☒ Relatively New – Now Being Widely Established			
	☐ Not Yet Found in Many (or Any) Other Universities			
9.	**Course Relationship to Program(s).**			
a.	Is this course part of a proposed new program?		YES ☒	NO ☐
	If YES, name the proposed new program:	Information Studies Minor		
b.	Will this course be a new requirement[5] for ANY program?		YES ☐	NO ☒
	If YES[5], list affected programs:	_____		
10.	**Information to be Placed on Syllabus.**			
a.	Is the course 400G or 500?		YES ☐	NO ☒
	If YES, the *differentiation for undergraduate and graduate students must be included* in the information required in ***10.b***. You must include: (i) identification of additional assignments by the graduate students; and/or (ii) establishment of different grading criteria in the course for graduate students. (See *SR 3.1.4*.)			
b.	☐	The syllabus, including course description, student learning outcomes, and grading policies (and 400G-/500-level grading differentiation if applicable, from ***10.a*** above) are attached.		

[5] In order to change a program, a program change form must also be submitted.

Distance Learning Form

This form must accompany every submission of a new/change course form that requests distance learning delivery. This form may be required when changing a course already approved for DL delivery. **All fields are required!**

Introduction/Definition: For the purposes of the Commission on Colleges Southern Association of Colleges and Schools accreditation review, *distance learning* is defined as a formal educational process in which the majority of the instruction (interaction between students and instructors and among students) in a course occurs when students and instructors are not in the same place. Instruction may be synchronous or asynchronous. A distance learning (DL) course may employ correspondence study, or audio, video, or computer technologies.

A number of specific requirements are listed for DL courses**. The *department* proposing the change in delivery method is responsible for ensuring that the requirements below are satisfied at the individual course level.** It is the responsibility of the instructor to have read and understood the university-level assurances regarding an equivalent experience for students utilizing DL (available at http://www.uky.edu/USC/New/forms.htm).

Course Number and Prefix: IS202	Date: 2/4/2011
Instructor Name: Not known	Instructor Email: for contact please use jeffrey.huber@uky.edu

Check the method below that best reflects how the majority of course of the course content will be delivered.

Internet/Web-based ☒ Interactive Video ☐ Hybrid ☐

	Curriculum and Instruction
1.	How does this course provide for timely and appropriate interaction between students and faculty and among students? Does the course syllabus conform to University Senate Syllabus Guidelines, specifically the Distance Learning Considerations? Daily interaction will be possible through Blackboard discussion boards and email. Syllabus conforms to Senate guidelines. Syllabus includes statement on timliness of response to email inquiries.
2.	How do you ensure that the experience for a DL student is comparable to that of a classroom-based student's experience? Aspects to explore: textbooks, course goals, assessment of student learning outcomes, etc. Many items from traditional face to face courses will remain intact for this class including appropriate text and course goals. Assessment will be accomplished through similarly appropriate assignments such as papers, projects and course participation. Additionally, course will make use of online tools such as discussion boards, email, Adobe Connect, Flash video presentations and other communication methods to improve the overall experience.
3.	How is the integrity of student work ensured? Please speak to aspects such as password-protected course portals, proctors for exams at interactive video sites; academic offense policy; etc. Each student's Blackboard account is tied into their myUK account. Assignments, such as papers, will be handled much the same as they would in a face to face course in terms of being evaluated for possible issues in regards to the academic offense policy. Quizzes and exams will be given via Blackboard and myUK, which require secure password authentication. All exams will consist of random ordering of questions in a category and random ordering of answers for questions, helping to prevent copying from one computer to another. Quizzes and exams will be open book, and timed, to assure that all students have the same opportunities for success. Written work will be read closely for evidence of plagiarism and appropriate tools will be used to check for this. (e.g., SafeAssign).
4.	Will offering this course via DL result in at least 25% or at least 50%* (based on total credit hours required for

Abbreviations: TASC = Teaching and Academic Support Center DL = distance learning DLP = Distance Learning Programs

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	completion) of a degree program being offered via any form of DL, as defined above? Yes. The School of Library & Information Science is proposing a new undergraduate minor in Information Studies. The entire minor will be available online. If yes, which percentage, and which program(s)? *100%; IS (proposed undergraduate minor)* *As a general rule, if approval of a course for DL delivery results in 50% or more of a program being delivered through DL, the effective date of the course's DL delivery will be six months from the date of approval.
5.	How are students taking the course via DL assured of equivalent access to student services, similar to that of a student taking the class in a traditional classroom setting? Since our program has long had remote students (primarily around Louisville and northern Kentucky), we have much experience in making student services as accessible as possible. Our program uses a listserv for program annoucements and we employ a full-time student affairs officer who regularly communicates with our students, regardless of location. We've also begun a Blackboard organization to further assist in providing student services to remote participants. Additionally, we encourage students to use services such as Distance Learning Libary Services when appropriate. We anticipate doing similar things for students in this proposed minor.
	Library and Learning Resources
6.	How do course requirements ensure that students make appropriate use of learning resources? In order to successfully complete assignments such as class participation, quizzes and projects, students will have to use their textbook, course readings and supplementary materials available through UK Libraries.
7.	Please explain specifically how access is provided to laboratories, facilities, and equipment appropriate to the course or program. Students will not require access to equipment outside of a personal computer and appropriate software. Students will primarily use the services of UK's Distance Learning, UK Distance Learning Library and electronic access to UK Libraries.
	Student Services
8.	How are students informed of procedures for resolving technical complaints? Does the syllabus list the entities available to offer technical help with the delivery and/or receipt of the course, such as the Teaching and Academic Support Center (http://www.uky.edu/TASC/index.php) and the Information Technology Customer Service Center (http://www.uky.edu/UKIT/)? Students are informed via the syllabus and given contact information for technical issues.
9.	Will the course be delivered via services available through the Teaching and Academic Support Center? Yes ☒ No ☐ If no, explain how students enrolled in DL courses are able to use the technology employed, as well as how students will be provided with assistance in using said technology.

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<table>
<tr><td>10.</td><td>Does the syllabus contain all the required components, below? ☒ Yes

☐ Instructor's virtual office hours, if any.
☐ The technological requirements for the course.
☐ Contact information for TASC (http://www.uky.edu/TASC/; 859-257-8272) and Information Technology Customer Service Center (http://www.uky.edu/UKIT/; 859-257-1300).
☐ Procedure for resolving technical complaints.
☐ Preferred method for reaching instructor, e.g. email, phone, text message.
☐ Maximum timeframe for responding to student communications.
☐ Language pertaining academic accommodations:
o "If you have a documented disability that requires academic accommodations in this course, please make your request to the University Disability Resource Center. The Center will require current disability documentation. When accommodations are approved, the Center will provide me with a Letter of Accommodation which details the recommended accommodations. Contact the Disability Resource Center, Jake Karnes, Director at 859-257-2754 or jkarnes@email.uky.edu."
☐ Information on Distance Learning Library Services (http://www.uky.edu/Libraries/DLLS)
o Carla Cantagallo, DL Librarian
o Local phone number: 859 257-0500, ext. 2171; long-distance phone number: (800) 828-0439 (option #6)
o Email: dllservice@email.uky.edu
o DL Interlibrary Loan Service: http://www.uky.edu/Libraries/libpage.php?lweb_id=253&llib_id=16</td></tr>
<tr><td>11.</td><td>I, the instructor of record, have read and understood all of the university-level statements regarding DL.

Instructor Name: TBD Instructor Signature:</td></tr>
</table>

Abbreviations: TASC = Teaching and Academic Support Center DL = distance learning DLP = Distance Learning Programs

IS 202
Technologies for Information Services

Course Information:

Meeting Time/Location: Online
Course Web Site

Instructor Information:

Name
Office location
Phone number
Email address
Office Hours
Preferred Contact Method
Response time: If you email me, you should expect a response with 24 hours. There may be a delay over weekends or holidays.

This course is designed to teach the fundamental concepts of information technology in ways relevant to professional practice in informatics and the information professions. It explores applications of computers and networks to information problems. Included are features of hardware, types of software, commercial systems and search engines.

Course Goal

This course will prepare students to create strategic technology plans, evaluate and acquire applications for their institution, contribute to information policy discussions, participate with software engineers in design discussions, identify and understand social, political and commercial opportunities created by networked information technologies and communicate this understanding to others.

Learning Outcomes

In achieving these learning outcomes, students will:

- communicate with peers about complex technical issues, using clear and effective English, in both written and oral form;
- design a personal strategy for maintaining and updating their information technology literacy, given their projected professional path;
- analyze the architecture of a computing device in terms of its requirements for processing power, storage, and communication bandwidth;
- articulate the role of modularity as a fundamental tool for managing software and network infrastructure complexity;
- discuss and further research appropriate methodologies for the analysis and design of an information technology project;

- list the competing standards and standard bodies operating within a given standardization area;
- articulate the pros and cons of open vs. proprietary standard strategies;
- analyze the economic conditions driving a specific information technology market;
- critically appraise the advantages and disadvantages of current government regulation in the areas of telecommunications, intellectual property, and development;
- appreciate the conceptual and engineering tools used by the programming community to design and implement software;

Textbooks

None required.

Exams and Assignments

Reading Reports
Designed to familiarize you with the literature. You will select and read articles on a variety of topics and write 2 – 3 page summaries and analyses of each.

Technology Plan
Identify a need in an information organization and develop a technology plan to meet that need.

Final Exam

Relative Value of Assessments Toward Course Grade:

Grades will be based on the following exams and assignments:

Assessment	Percentage of Course Grade
Class Attendance & Participation	10%
Reading Reports (6 at 5% each)	30%
Technology Plan	30%
Final Exam	30%
Total	100%

Course Grade

Course grades are assigned according to the following criteria.

Course Grade	Percentage
A	90% or better

B	80 – 89%
C	70 – 79%
D	60 – 69%
E	Below 60%

Policies

Attendance and Participation

Though this is a distance learning course, we will rely heavily on class discussion as we discover methods of research and inquiry. You are expected to check the Blackboard site at least twice a week and to be prepared with questions and comments about the readings. Engaged and respectful discussion is necessary for the success of this class. An absence in this class is a week of no activity on Blackboard. Any student who misses more than 1/5 of the class will automatically fail the course.

Excused Absences and Verification

Please refere to Student Rights and Responsibilities, Part II, Section 5.2.4.2 (http://www.uky.edu/StudentAffairs/Code/part2.html) for UK's policy on excused absences. You can request verification for excused absences.

Excused absences include (as defined at the web site above):

- Significant illness of student or serious illness of household member or immediate family
- Death of a household member or immediate family
- Trips for members of student organizations, class excursions or participation in intercollegiate athletic events
- Major religious holidays
- Any other circumstance that the instructor finds reasonable cause for nonattendance

Academic Accommodations

If you have a documented disability that requires academic accommodations, please see me as soon as possible. In order to receive accommodations in this course, you must provide me with a Letter of Accommodation from the Disability Resource Center (Room 2, Alumni Gym, 257-2754, jkarnes@uky.edu) for coordination of campus disability services available to students with disabilities. We can then collaborate on the best solution.

Academic Integrity, Cheating and Plagiarism

You are expected to submit your own original work for all assignments in this course. See the home page for the Office of Academic Ombud Services (http://www.uky.edu/Ombud) for a definition of plagiarism, how to avoid plagiarism and UK's new academic offense policy.

Please refer to Student Rights and Responsibilities, Part II, Section 6.3 (http://www.uky.edu/StudentAffairs/Code/part2.html) for UK's policy on academic integrity.

Classroom Behavior, Decorum and Civility

Please be respectful to others in the class and engage in civil discourse when we discuss topics that have a diversity of perspectives. Please help me maintain the most courteous environment by using a little peer pressure if necessary. Thank you.

TECHNOLOGY INFORMATION & RESOURCES

Distance Learning Students are expected to have a minimum level of technological acumen and the availability of technological resources. Students must have regular access a computer with a reliable Internet connection and audio capabilities. Internet Explorer 7 (IE) or Firefox 2.x are the recommended browsers for those using a Windows-based PC. Those using Firefox 3.x may encounter problems with assignment uploads. Those using an Apple computer with MAC OS X (10.5.x) may use Firefox 3.x or Safari 3.x.

Please be certain that your computer and/or browser allow you to view Adobe Reader documents (.pdf). Microsoft Office and other software products are free for students: https://iweb.uky.edu/MSDownload/.

As your instructor, I am your first go-to person for technology problems. If you need more immediate assistance, please contact TASC or UKIT.

Teaching and Learning Services Center (TASC)
http://www.uky.edu/TASC/; 859-257-8272

Information Technology Customer Service Center (UKIT)
http://www.uky.edu/UKIT/; 859-257-1300

Library Services

Distance Learning Services
http://www.uky.edu/Libraries/DLLS
Carla Cantagallo, DL Librarian
Local phone number: 859 257-0500, ext. 2171; long-distance phone number: (800) 828-0439 (option #6)
Email: dllservice@email.uky.edu
DL Interlibrary Loan Service:
http://www.uky.edu/Libraries/libpage.php?lweb_id=253&llib_id=16

General Course Policies
Policies concerning academic integrity, excused absences and academic accommodations due to disability are available online at:
http://www.uky.edu/CIS/SLIS/academics/policies.pdf

Course Schedule

Weeks 1 and 2: Course Overview & Information Technology Literacy

Core concepts
Skills-based literacy, information technology fluency, knowledge performances.

Read
D. Scott Brandt, "Information Technology Literacy: Task Knowledge and Mental Models", *Library Trends* **50**(1):73-8
Becker, H. S. (1972), "A school is a lousy place to learn anything in", *American Behavioral Scientist* **16**(1): 85-105.
David Bawden, "Information and Digital Literacies: A Review of Concepts," *Journal of Documentation*, **57**(2): 218-259.
"Computer literate: competent in the use of computers (Chambers English Dictionary)" (p. 225)
James Marcum, "Rethinking Information Literacy", *The Library Quarterly* **72**(1): 1-26.

Browse
American Association of University Women, *Tech-Savvy: Educating Girls in the New Computer Age*, Washington DC., 2000.
National Research Council, *Being Fluent with Information Technology,* Washington DC, 1999.
ALA /ACRL's "Information Literacy Competency Standards for Higher Education," (January 18, 2000).
SAA's "Guidelines for a Graduate Program in Archival Studies," (January 2002).

Week 3: Computer-Supported Cooperative Work and Play

Core concepts
Sociotechnical systems, technological determinism, symbolic engineering.

Read
Genevieve Bell and Joseph "Jofish" Kaye, "Designing Technology for Domestic Spaces: A Kitchen Manifesto", *Gastronomica* **2**(2):46-62 (2002).
Philip E. Agre , "Information and Institutional Change: The Case of Digital Libraries", in Ann P. Bishop, Nancy A. Van House, and Barbara P. Buttenfield, eds, *Digital Library Use: Social Practice in Design and Evaluation*, MIT Press, 2003.

Due
Reading Report #1

Week 4 and 5: Architecture

Core concepts
Processing power; memory hierarchy; communication bandwidth; client-server, peer-to-peer, three-tier architecture; thin/thick clients; Von Neumann architecture.

Read
David. G. Messserchmitt, "Information Technology", chapter 4 in *Understanding Networked Applications,* Morgan Kaufmann, 2000.
David. G. Messserchmitt, "Client-Server Computing", chapter 5 in *Understanding Networked Applications,* Morgan Kaufmann, 2000.
"High-Speed Data Races Home", "The Internet via Cable", "DSL: Broadband

by Phone", "The Broadest Broadband", "Satellites: The Strategic High Ground", "LMDS: Broadband Wireless Access", "The Light at the End of the Pipe", *Scientific American*, **281**(4).
Paul E. Ceruzzi, "The Advent of Commercial Computing, 1945-1956", chapter 2 of *A History of Modern Computing*, 2nd ed., MIT Press 2003.
Richard E. Smith, "A Historical Overview of Computer Architecture", *Annals of the History of Computing*, October-December 1988, 10(4):277-303.

Week 6: Modularity and Layering

Core concepts
Modularity: functionality, granularity, hierarchy, separation of concerns, interoperability, reusability; *modules:* interface, implementation, actions, parameters and returns, data types, protocols; *layering:* middleware, spanning layer.

Read
Karl T. Ulrich, "The Architecture of Artifacts", chatper four of *Design: Creation of Artifacts in Society*. http://www.ulrichbook.org, 2007.
David. G. Messserchmitt, "Modularity, Layering", chapter 6 in *Understanding Networked Applications,* Morgan Kaufmann, 2000.
David. G. Messserchmitt, "Network Architecture and Protocols", chapter 19 in *Understanding Networked Applications,* Morgan Kaufmann, 2000.

Week 7 and 8: Design

Core concepts: requirements analysis, "conduit" metaphor, participatory and iterative design, unintended consequences, qualitative research methods, situated design.

Read
Donald A. Norman, "Being Analog", chapter 7 in *The Invisible Computer: Why Good Products Can Fail, the Personal Computer Is So Complex, and Information Appliances Are the Solution.* MIT Press, 1999.
Brian M. Landry, Jeffrey S. Pierce and Charles L. Isbell Jr, "Supporting routine decision-making with a next-generation alarm clock", *Personal and Ubiquitous Computing* (2004) 8: 154–160.
David Frohlich & Jacqueline Fennell, "Sound, paper and memorabilia: resources for a simpler digital photography", *Personal and Ubiquitous Computing* **11**: 107–116 (2007).
W. Wayt Gibbs, "Software's Chronic Crisis," Scientific American, September 1994, pp. 86-95.
Robert Charette, "Why software fails", *IEEE Spectrum*, **42**(9):42-49 (Sept. 2005).
Joan S. Ash *et al.*, "Some Unintended Consequences of Information Technology in Health Care: The Nature of Patient Care Information System-related Errors", Journal of the American Medical Informatics Association, **11**(2):104-112 (March/April 2004). Survey: Make It Simple, *The Economist*, October 28, 2004.

Due
Reading Report #2

Week 9: Standards

Core concepts
Interoperability; *de facto*/*de jure* standards; standard bodies, organizations and consortiums (ISO, IETF, W3C, ANSI, NISO, etc.), open/proprietary standards,

lock-in.

Read
Florence Millerand and Geoffrey Bowker, “Metadata Standards: Trajectories and Enactement in the Life of an Ontology”, in Martha Lampland & Susan Leigh Star (eds), *Standards and their Stories: How Quantifying, Classifying, and Formalizing Practices Shape Everyday Life*, Cornell University Press, 2008.
Janet Abbate, “The Internet in the Area of International Standards”, chapter 5 in *Inventing the Internet*, MIT Press, 1999.
Urs von Burg, *The Triumph of the Ethernet,* Stanford University Press, 2001 (Introduction).
Browse
Unicode Consortium, *The Unicode Standard, Version 5.2.* Unicode Consortium, 2009 (Introduction and General structure)
ANSI/NISO Z39.85 – 2007, The Dublin Core Metadata Element Set, 15 pp. ANSI Approval Date: May 22, 2007.

Due
Reading Report #3: Design

Week 10: Markets

Core concepts: network effects; natural and serial monopolies; first-to-market; barriers to entry; economies of scale and scope; tipping point; fixed, sunk, and marginal costs; platform market; productivity paradox.

Read
Jonathan E. Nuechterlein and Philip J. Weiser, “The Big Picture”, in *Digital Crossroads: American Telecommunications Policy in the Internet Age*, MIT Press, 2005.
Hal Varian, “Economics of Information Technology” (you can skip section 7, and any material that is overly mathematical or that refers to economic concepts you are unfamiliar with — e.g., Nash equilibrium, or Pareto efficiency).
Tristan Henderson, Jon Crowcroft, & Saleem Bhatti, “Congestion Pricing: Paying Your Way in Communication Networks,” *IEEE Internet Computing*, **5**(5):85-89 (September/October 2001).

Due
Reading Report #4: Standards

Week 11: Regulation

Core concepts
Convergence; networked industries; universal service; antitrust; copyleft; technology blending.

Read
Longstaff, P. H., “Networked Industries: Patterns in Development, Operation, and Regulation.” http://pirp.harvard.edu/pubs_pdf/longsta\longsta-p00-2.pdf (read pages 1-31).
Paul Ganley, Ben Allgrove, “Net neutrality: A user's guide,” *Computer Law & Security Report*, **22**(6): 454-463 (2006).
Edward W. Felten, *Nuts and Bolts of Network Neutrality*, July 6, 2006.

Due
Reading Report #5: Markets

Week 12 and 13: Architecture (part two): The Cloud

Core concepts
Grid, on-demand, cloud, ubiquitous, and pervasive computing.

Read
Geoffrey A. Fowler and Ben Worthen, "The Internet Industry Is on a *Cloud* — Whatever That May Mean," *Wall Street Journal*, March 26, 2009.
Ian Foster, "The Grid: Computing without Bounds", *Scientific American*, April 2003, Vol. 288 Issue 4, p78.
David Talbot, "Security in the Ether: Information technology's next grand challenge will be to secure the cloud—and prove we can trust it" *Technology Review* January/February 2010.
McDowell, J.C., Downloading the sky", Spectrum, IEEE, Volume: 41 Issue: 8 Aug. 2004, Page(s): 35- 39.
Special Report: "A world of connections", *The Economist,* April 26th, 2007.
Anderson, D. P., *et al.* 2002. "SETI@home: an experiment in public-resource computing," Communications of the ACM 45(11) (Nov. 2002), 56-61.

Browse
Help locate the aliens by sharing your idle processor cycles! Download and install the SETI client.

Due:
Reading Report #6: Regulation

Week 14 and 15: Programming

Core concepts
Algorithmic complexity; rate of growth; pseudo-code; low/high level languages; imperative, functional, object-oriented languages; modularity.

Read
Daniel Hillis, Chapter 5, "Algorithms and Heuristics" and 3, "Programming."
Bakhtiar Mikhak *et al*., "To Mindstorms and Beyond: Evolution of a Construction Kit for Magical Machines" in *Robots for Kids: Exploring New Technologies for Learning Experiences*. (Edited by Allison Druin, published by Morgan Kaufman and Academic Press, San Francisco, March, 2000).
David. G. Messserchmitt, "Application Architecture", chapter 10 in *Understanding Networked Applications,* Morgan Kaufmann, 2000.
Donald E. Knuth, "Algorithms", *Scientific American* 236(4):68-30 (April 1977).
Ron Eglash, Audrey Bennett, Casey O'Donnell, Sybillyn Jennings, and Margaret Cintorino, "Culturally Situated Design Tools: Ethnocomputing from Field Site to Classroom", *American Anthropologist* 108(2):347-362.
Mike Eisenberg, Ann Nishioka Eisenberg, "Shop Class for the Next Millennium: Education Through Computer-Enriched Handicrafts" *Journal of Interactive Media in Education* 98(8).

Due:
Technology Plan.

Final Exam Week: Final Exam