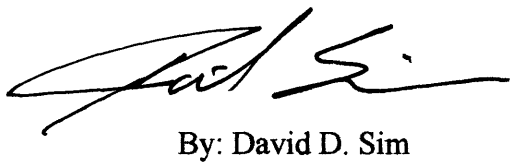
00E0581

Project Number: MQJ-5100-51

Philosophy and Technology

Report Submitted to:

Professor Marianne Janack, Advisor



By: David D. Sim

August 8, 2000

This project report is submitted in partial fulfillment of the degree requirements of Worcester Polytechnic Institute. The views and opinions expressed herein are those of the author and do not necessarily reflect the positions or opinions of Worcester Polytechnic Institute.

This report is the product of an education program and is intended to serve as partial documentation for the evaluation of academic achievement. The reader should not construe the report as a working document.

Philosophy and Technology

ABSTRACT:

Philosophy and Technology is a college level course designed to study the metaphysical and ontological aspects of technology. The goal of this course is to make students aware of society's dependency on technology, what technology is, and where technology came from. Students are expected to learn this course through lectures, reading assignments and group projects. This course will discuss in depth the definition of technology. It is this course's objective to make students realize that technology is self-evolving, not chronological, political and economical. Ultimately, philosophy and technology will show that in our efforts to gain control, we have actually lost control.

ACKNOWLEDGEMENTS:

This project could not have been completed without the aid of Professor Marianne Janack, and other professors at Worcester Polytechnic Institute. They have contributed their knowledge of student behavior, learning methods, and their teaching skills to the development of this course. Their cooperation and eagerness to help provided this project with the ability to create a college level course; which could prove to be a subsequent tool for either developing other courses or incorporating the materials from this course in other courses.

TABLE OF CONTENTS:

Abstract i
Acknowledgements ii

1.0 Executive Summary 01
2.0 Introduction 03
3.0 Literature Review 09
3.1 When Things Start to Think 09
3.1.A Bits and Books 10
3.1.B Rights and Responsibilities 12
3.2 Philosophy and Technology 15
3.2.A Pure Science, Applied Science, and Technology 16
3.2.B Technology and the Structure of Knowledge 17
3.2.C Toward a Philosophy of Technology 18
3.2.D Techniques and the Nature of Man 19
3.2.E Technology and Politics 21
3.2.F Democratic Theory: Ontology and Technology 23
3.2.G Pursuit of Happiness and Lust for Power in Technological Society 24
3.2.H Man and Machine 25
3.2.I Christianity and the Machine Age 26
3.2.J Technology and Man: A Christian View 26
3.2.K Technology in Its Proper Sphere 27
3.2.L The Practical Uses of Theory 28
3.3 Technology And the Politics of Knowledge 29
3.3.A Subversive Rationalization 29
3.3.B Citizen Virtues in a Technological Order 30
3.3.C The Moral Significance of the Material Culture 30
3.3.D Sade, the Mechanization of the Libertine Body, and The Crisis of Reason 31
3.3.E Archimedean Point and Eccentricity 31
3.3.F Gilbert Simondon's Plea for a Philosophy of Technology 31
4.0 Methodology 32
5.0 Analysis & Results 35
6.0 Conclusions 36
7.0 Recommendations 37

Appendices

Appendix A – Course Syllabus
Appendix B – Course Handouts
Appendix C – Power Point Presentation (Used in conjunction with the Handouts.)

Works Cited 39

1.0 Executive Summary

The primary objective of this project was to develop and establish a course solely geared to the study of Philosophy and Technology. The course was developed through intense analysis of works by published authors and professionals on the subject. The main goals of this project were to use the available media resources at a college setting to aid in teaching the study of metaphysical and ontological aspects of technology, and to present the material to students in an orderly manner so that they may derive at their own conclusions about technology.

First this project required a lot of research. In gathering information from both technological and philosophical points, there were surprisingly a lot of published authors and professionals on the subject. To clearly understand the course we separated the two terms that made up the course and defined them in depth. In this process we found that technology is a form of metaphysics, which is a form of philosophy that deals with the nature of existence and of truth and knowledge. Therefore if technology is a form of metaphysics, and metaphysics is a form of philosophy, then one can assume that technology is a form of philosophy.

The project's second goal was to organize the course in an orderly manner so that a student could follow the material easily. In order to create such a course, we needed to ask who would it be for, what will we include, when should one learn the course, what kind of a setting should the class be like and how will we teach it. To justify these questions we based the course on the abilities of an average student, mainly myself.

If an average student like myself learned in a variety of ways, what would be those ways? One can only assume that a person would learn on an individual or a group

method and within these methods by interacting with some source of information. The course was designed with all these points in mind. The course in Philosophy and Technology includes the use of the web to gather grades, converse with other members in class, and to retrieve class handouts and power point slides. The course is taught in a lecture setting but there is a percentage of the class geared towards a group project too.

Third portion of the project was to put together the organization and the definitions of Philosophy and Technology together. The best process was the one in which the separate definitions were studied first to form a fundamental base, and then we looked at the actual application of the definitions on our lives, our economy, and overall in our society. In this manner we found philosophy and technology to be the same. They are self-evolving and generating, not chronological and composed partly of politics and economics.

Our theories about philosophy and technology being intrinsically the same are proven by the research. While no student evaluation of the course was possible the course does present a blueprint of the topics an actual course in Philosophy and Technology should include, as well as justifications for their inclusion. However, the only downfall to the course is that in its designs to create an orderly and easy learning atmosphere, for all types of students alike, the course is limited because it is based off the web. Hence, because the course is based off the web the students themselves become dependent on technology, which we seek so desperately to control.

2.0 Introduction:

The course's main purpose is to make students realize that in society's attempt to modernize, to gain control and to provide more convenience, society has done the direct opposite. We have created modern equipment, which aids us in our day-to-day lives. But in our efforts to do so, how many years of testing, money and time went to develop such equipment? And now that we are accustomed to such modern technology can we survive without it? This course Philosophy and Technology asks such questions, so that a student is forced to ask and re-ask the question "is society better because of technology?"

To understand technology we must look at the intrinsic definition of technology. Technology is the development of tools we acquire through knowledge given the set level of knowledge in society at that time. Such knowledge of our society and the study of it can be called the study of metaphysics. Metaphysics is a branch of philosophy that deals with the nature of existence and of truth and knowledge. Now by applying our understanding of modern convenience we can simply call it a tool, since tools are anything and everything that aids us in our day to day lives. The tools are a variety of applications of science, modern conveniences and in past eras, jewelry too.

Technology is not chronological in nature but it is self-evolving. Society and human beings are dependent on technology. "If one ignores most of the connections between technology and society, it is no wonder that technology then appears to be self-

generating."[1] We presume technology to be chronological, because we assume that for one type of invention, or convenience to exist, it had to have had a predecessor. However, because of the different applications of knowledge in different fields of knowledge within our society we may conclude that technology is also different in its different areas of knowledge.

Technology itself is composed of two different parts, a "social meaning and (a) cultural meaning,"[2] where the application of knowledge is given a reason for its development. This is best exemplified in the invention of the Bicycle. The invention of the bicycle has both a social and a cultural meaning. Bicycles with giant wheels on the front are presumed to be older then the bicycles with even sized wheels. However the invention of the bicycle is not linear and there was no predecessor before the other. Instead the bicycles were designed using two different applications of knowledge. If simply technology can be defined as the application of knowledge in all fields to produce more knowledge, then the bicycles were two different forms of technology. The bicycle with the big front wheel was designed for speed, style, and adventure, while the bicycle with the even size wheels were designed for stability and maneuverability. One bicycle was for social benefit, so that people could enjoy it as a form of adventure, where the other was a form of cultural good and could be enjoyed by everybody for transportation purposes. However, due to the instability of the giant wheel bicycle it was discontinued, and despite its invention at the same time as the even wheeled bicycle it is presumed to be a predecessor to the other.

---

[1] Andrew Feedbag, Alastair Hannay, Technology and The Politics of Knowledge (Bloomington: Indiana University Press, 1995) 9.
[2] ibid

The cultural horizon of technology is what society perceives the modern convenience to be and its role within their lives. This is best exemplified in the French invention of the Minitel. A "new type of terminal, the Minitel, (which was to be) an adjunct to the domestic telephone." This new technology was later used by society in a different manner from which it was originally intended for. It was employed "primarily for anonymous on-line chatting with other users in search for amusement, companionship, and sex."[3] Hence producing a cultural horizon of technology that is very different from that of what it was primarily designed for.

Further examination between technology and science showed that "technology is presumably social only through the purpose it serves, and purposes are in the mind of the beholder. Technology would thus resemble science and mathematics by its intrinsic independence of the social world."[4] Despite technology's self-evolving behavior technology is in actuality dependent to society. Just like a mathematical formula where the y is the dependent of x and vice versa so is technology and society. As society evolves with new knowledge and understanding so does technology. After all technology is a form of acquired knowledge.

With this understanding of technology, which is considered to be social, and thus "technology is a particular feature of our society and not a universal dimension of as such,"[5] we can conclude that it is not far fetched to study technology from that standpoint of philosophy. We had concluded that because technology has both moral and metaphysical implications, which are branches of studies in philosophy, technology could

---

[3] Andrew Feedbag, Alastair Hannay, Technology and The Politics of Knowledge (Bloomington: Indiana University Press, 1995) 10.
[4] Andrew Feedbag, Alastair Hannay, Technology and The Politics of Knowledge (Bloomington: Indiana University Press, 1995) 5.

be appropriately placed as a form of philosophy. Thus the study of Philosophy and Technology can be concluded to study both the applications of our own achievements in a moral and humanly perceived notion.

The project's main focus shifted once we had defined our terms necessary in the development of the course. Our new goals were to develop a teaching method to fit the needs of an average student so that they may learn in an orderly manner, and to decide what materials from the research should be presented in what order. In order to complete this portion of the project the course was divided up into different philosophical subheadings. The three different categories that the course deals with are: recognizing technological advances and what we perceive to be technology, the definition of technology and the structure of knowledge, and technology's implications on society. They are all related in that once students have understood what technology is and its relationship with philosophy then the course has the ability to develop this idea within the student's lives and surroundings. Complemented by Worcester Polytechnic Institute's facilities with its multi media capabilities the students will learn through web based individual accounts which will offer personalized information, their academic grades, a class bulletin board, a class roster and email addresses. The web also allows for professors to post handouts and quizzes on the web. The students should print out course handouts and power point slides prior to the start of each class, so that it may serve as an added reference during the class. This allows for the class to progress at a faster pace by cutting down on the material written on board by the instructor, and thus allowing for the instructor to take time in special sections.

---

[5] ibid

From here on the project's main focus was to organize an agenda, to control the learning atmosphere of students, where not all students are visual learners, or learn better with a lecture format. So an incorporation of multiple tools was thought best to teach the students. In many of the technical majors at Worcester Polytechnic Institute, professors use an overhead projector of some sort to show students a clear and organized form of notes and highlighted objects. This is an attempt to clarify a complicated subject so that a student can learn and follow the lecture easily. However, the enlarged projection at the front of the class is not enough, thus most engineering or courses involving many diagrams such as management classes at Worcester Polytechnic Institute, offers web-pages in conjunction with the class. The web and the multi media capabilities at Worcester Polytechnic Institute are used effectively to offer a limitless opportunity for educational and student advancements. The students are able to figure out grades, assignments, communicate with the professor and other students via the web. This allows for effective self-evaluation, because it is at the reach of a button. By using the web as an effective means of support for the course the cost to the student for books is decreased as well. The notes are usually an effective means of a learning tool and other resources could be put on hold at the library for students. The only draw back to putting other resources at the library is that students often don't go to get the needed resources. With all this in mind the project sought to combine all these tools, and to develop a course that would teach students in the best possible manner using the most up to date conveniences and achieving better understanding of the subject for students. An added note in creating a course I came to realize that the course Philosophy and Technology itself is a clear example of how technology has become a needed and required tool. In

order to learn this course the students are required to use the web and thus the course has become somewhat of an oxymoron. Since the students are required the use of a PC and other modern equipment to learn a course which teaches the students to ask "is society better because of technology," or in this case "is the class better because of technology," I can not help but feel that the course itself is the direction of our society. Where we have possibly accepted the means of being modern as to separate ourselves from human aspects of life and face self-evaluation at the presence of a machine? Then again I guess students will just have to take the course to answer their questions about the course.

Due to the nature of the project and the course material studied and presented here the only reasonable conclusion is that technology is philosophy and that Philosophy and Technology is ever evolving as mankind evolves. Technology might be intrinsically independent like mathematics and sciences, but it is dependent on society because it is a form of knowledge and knowledge is the application within society to better itself. Thus the focus of this project is to convince students of this phenomenon, that in our efforts to gain control, we have in essence lost our ability to control. The technology within our society is ever evolving and to control something that is not fixed is impossible, thus we must move with the technology to gain sanity and in some fashion try to gain control. Human beings are a rational being thus experiments can only be done in a controlled setting in order for it to make sense, therefore to gain control of technology, which is always evolving as we humans evolve is in essence a question of can we control ourselves. So when we view technology from this aspect, we now realize that technology is philosophy.

3.0 LITERATURE REVIEW:

Since the project deals with heavy analysis and research gathered by studying published authors and professional experts on the subject the following are the specific areas in which I gathered the material necessary for the development of this course

3.1 *When Things Start to Think*, By: Neil Gershenfeld

When Things Start to Think, by Neil Gershenfeld, is one of the key books used to set the mood and tone for the course. The book discusses how and if inanimate objects could think and what they would say. Since Neil Gershenfeld's area of expertise is in the area of our digital age, the majority of the book is based on his knowledge of the digital world in application to our society. The primary discussion within the book is how technology has transformed our way of living. Some methods of how society has modernized the past and how it will modernize the future are discussed. The book deals heavily in the technology of today. Given that technology is the application of knowledge in search of truth and meaning, then the technology of today must be compared to the technology of yesterday to find a set pattern. Gershenfeld's goal is to show detailed analysis of technology's role within our society that infringes on our human role with the development of technological tools.

I took excerpts from two chapters of his book to show this example of modern convenience infringing on our human rights. Human rights of personal interaction with other human beings are becoming extinct with the development of technology, which is

geared towards individualized attention. Where the book-of-the-future will no longer be a book as we see it, but a well back-lighted lap top with the its own light source, threatening the extinction of our library system and human interaction. The book ponders the question is modern convenience taking away from human interaction and all aspects of being human. Neil Gershenfeld's ability compare the technology of yesterday and today sets a clear tone for this course. The tone is to study the effects of technology on society as society evolves over a period of time and because technology is an intricate component of society it too evolves. So to study the technological effects is to study philosophy, especially if our understanding of philosophy is the search for knowledge, truth and a state of being within the universe.

3.1.A Bits and Books

"The demise of the book has been planned for centuries."[6] The book of yesterday and the book-of-the-future are compared. Neil Gershenfeld discusses how and why things change, the ways they change and whether this change is ultimately for the better, for worse or a mix of the two.

The main idea in this chapter of the book is that we take for granted the experience and knowledge that we have gathered from the books of yesterday. The books of yesterday required and demanded nothing less than genius. To create libraries and catalog books in order as it is still used today required immense study and methodical ingenuity. However, will these systems of cataloging books, and other human traits associated with a book survive or die out with the modernization of the book-of-the-

future? Such human traits as the ability to detect the different glare of ink from one book to another or the ability to search for a book within wall like rows of the library are almost at its end. The human ability to view a book in different levels of ambient light so as to set different moods and reading in different locations not surrounded by electricity are things that one might take for granted when it is not available. The book-of-the-future is imposing on these areas of human society. Given the technology and the convenience of today the book-of-the-future can not be read without a battery or an alternate source of power, like electricity. The book-of-the-future also shows possibilities of reestablishing our library system. The proposed book-of-the-future that Gershenfeld is talking about is a type that does not require a CD-ROM. Instead the book would be a display with the capabilities of downloading volumes of books, where the text, or the ink would change at the press of a button, at the convenience of your own home. Such traces of the book-of-yesterday would be possibly lost if the book-of-the-future had its way.

Society is experiencing the book-of-the-future now in the form of your home PC, or laptop all equipped with a CD-ROM. This book, does not require a light-source since it comes equipped with one, which boots instantly, permits fast random access to any page, provides instant visual and tactile feedback on the location, can be easily annotated and requires no batteries or maintenance, could be the possible book-of-the-future. However, despite the convenience of modernization and the lack of comfort of older objects we find that "the presumptions of a new technology must usually be tempered by the wisdom embodied in an old one."[7] Such as in the case of the internal combustion engine's initial days, when racehorses were raced against cars.

> Although horses are no longer the fastest means of transportation, no current car can recognize its owner with a glance, or choose a path through a narrow mountain pass, or be left in a meadow to refuel itself, or make a copy of itself when it begins to wear out. Cars still have a long way to go to catch up to horses.[8]

In the same manner the computers, which would become the books of tomorrow are "destined to be transformed even more by the books."[9] The books that we use in the libraries today are still unique in their own way. They have a certain smell, a characteristic, weight, and a glare that can not be reproduced by the books-of-the-future. When and if the book-of-the-future develops these characteristics then perhaps the book-of-yesterday will become obsolete. However, for now these traits, which are only found in the book-of-today and yesterday are goals that the book-of-the-future must obtain before it can be considered as a new means of what we consider to be our definition of a book. Reading a book is too personal and too human to be digitally bound like your favorite music CD. The books-of-the-future will be useful as is the books of today, and they will help each other in coexistence, but the book-of-the-future has a long way to go.

3.1.B Rights and Responsibilities

In this chapter Gershenfeld explores our methods of communication. The primary communication device used in society today is the telephone. The development of our digital age has also brought us electronic mail, which is convenient and has taken over as a secondary means of communication. Gershenfeld discusses the rights of the user and the item within this chapter.

---

[8] ibid

The user has the right not to be bothered by information that they do not desire, but they also have the right to receive the information that they desire promptly and affectivity. However, on the same note a thing's right is to have an identity, an access to other objects and the ability to detect the nature of their environment. The rights that both sides seek are the knowledge of one another and this knowledge can be restated as society seeking knowledge of technology. In reality this chapter explores the advantages of usefulness of modern communication and the possibilities of being a victim to it.

In today's society we use telephones and emails frequently. We are in many ways addicted and a slave to these modern means of communication. No matter where we are or what we are doing when a phone rings we are at its beckoning call. Human beings have allowed themselves to become this way by inventing a dumb phone. The phone is not smart in that it can not tell a friendly phone call from an unwanted one. As owners of a telephone we answer to its ring. The idea is that no matter where and how communication began, possibly from the days of printing presses, society has seen a need for faster, easier methods of communication. From the telegraphs, to telephones, and to the digital age of emails, and even possibilities of tele-portation, society has found methods of improving what it calls its methods of communication. In the early years of telephone use we realized that a ringing telephone meant "that someone was interested enough in you in particular to look up your number and call you,"[10] but now in a day and age of telemarketers, DSL lines and emails, some of the most private times of our lives are invaded by our own inventions for faster communication. Perhaps to the point where "we should now worry less about control of the means of communication and more about

[10] Neil Gershenfeld, When Things Start to Think.(NY, Henry Holt and Company, 1999) 100

control by the means of communication,"[11] because in society's efforts to control nature as in the study of applied sciences, society has lost it. Now the phone a simple modern convenience summons us at some of the worst times, or if it is connected to the computer, then it probably has email capabilities and thus we are inundated with emails.

Unlike human beings our conveniences do not have the ability to reason, think, or detect its surroundings. The users' rights are a simple means of allowing users to gain more control over their lives by giving more rights to things. This is a trade off in knowledge and not a loss of control. The things' rights are a mean of understanding their role in society and more importantly in our lives. Despite all the trouble a telephone brings to our lives we should understand that it is only following orders and can not help but obey the commands of those who use them improperly. It is not the phone that calls you but the person on the other end.

Such are the rights of a user. The user has the right to, "have information available when (they) want it, where (they) want it, and in the form (they) want it; be protected from sending or receiving information that (they) don't want; use technology without attending to its needs."[12] Technology should cater to our needs, where we can control the information and choose to do what we will. In our understanding of technology, which is the use of knowledge to produce goods and services given the resources within our economy, then we understand that the goods and services should be changed to fit our goals and our means of society. In this method society should shift "more authority to people, the Reformation (leading) to a new morality, a new set of shared standards of rights and responsibilities that (help) define what it means to be

[11] Neil Gershenfeld, When Things Start to Think.(NY, Henry Holt and Company, 1999) 100
[12] Neil Gershenfeld, When Things Start to Think.(NY, Henry Holt and Company, 1999) 102

civilized,"[13] and allowing society to return to its human values. Such values as we had thought in the early years of the telephone, where people called because they cared. Much in the same manner, the items too have their rights. They have the right to "have an identity, access other objects, (and) detect the nature of their environment."[14] They are the application of knowledge and are part of society. If one part of society, which is dependent on the other part, is changed then the other must eventually be changed as well. Only when the needs on both sides are equally met can we coexist as man and technology, and can there be a sharing in knowledge of truth and meaning. The knowledge of truth being that there are two sides to technology, where one is our ambitious goal to control and the unwillingness for nature to be controlled, and the knowledge of meaning, where an understanding of our intrinsic human values are returned to us, hence creating equilibrium again. This will allow the two sides to be neither a slave or master to the other, but this equilibrium is bound to be disrupted once more when more modernized conveniences arrive.

3.2 *Philosophy and Technology*, A collection of Essays.

Philosophy and Technology is a collection of essays dealing with this project. The book discusses a series of topics in an organized method, viewing all the aspects of technology and its attributes so that a reader is better able to understand technology and its philosophical points as well. The essays are written by professionals and published

[13] Neil Gershenfeld, When Things Start to Think.(NY, Henry Holt and Company, 1999) 103
[14] Neil Gershenfeld, When Things Start to Think. (NY, Henry Holt and Company, 1999) 104.

authors on the subject. Two other professionals, who collected the essays and organized them according to their topics, edited this book.

3.2.A "Pure Science, Applied Science, and Technology"

James Feibleman begins his essay "Pure science, applied science, and technology" with definitions of pure and applied sciences. Pure science is "a method of investigating nature by the experimental method in an attempt to satisfy the need to know," while the applied science is "the use of pure science for some practical human purpose."[15] Along with these definitions we can find the definition of technology, which can be considered "the further step in applied science by means of the improvement of instruments."[16] Thus by using these definitions as a core set of understanding, where the applied science is similar to the application of technology, and the pure science is the understanding of nature. The applied science like technology is a means to apply the practical approach of knowledge to the pure science question, which was developed prior to the practical analysis. To understand these definitions and study them in depth is to build a sound and fundamental structure to base knowledge, metaphysics and technology in the actual application of theory. This essay is a crucial part to the development of the course Philosophy and Technology.

3.2.B "Technology and The Structure of Knowledge."

---

[15] James K. Feibleman, "Pure Science, Applied Science and Technology: An Attempt at Definitions," Philosophy and Technology: 33.
[16] James K. Feibleman, "Pure Science, Applied Science and Technology: An Attempt at Definitions," Philosophy and Technology: 36.

I.C. Jarvie's essay "Technology and The Structure of Knowledge" argues that technology is in its entirety a form of knowledge. Technology is a substructure of knowledge and is the application of "know how." Know-how is a person's ability to rationalize effectively using the their present knowledge of the task at hand, or the truth that they do not know but are willing to learn. This know-how is the actual application and decision making necessary to study technological applications. Then what kind of knowledge is technology, is it one of truth or one of effective means? Technology is knowledge; "it is knowledge of what physicists call the 'initial condition."[17] In other words "knowledge is part of (a person's) multiform attempts to adapt to (their) environment which we call (their) technology."[18] Technology is both effective and truth knowledge, because "true knowledge of what is effective is not true knowledge of why it is effective and so it does not explain anything."[19] We only ask this question because we realize that technology has different aims than science, for "it aims to be effective rather than true- and it can be the one without the other."[36] Now realizing that technology is a form of knowledge which is a form of ontology by its study of being and since technology is both knowledge of truth and effective then being has to be considered the acceptance of truth. Through this association that technology has with knowledge and ontology we can further conclude that technology in itself must be a form of philosophy.

3.2.C "Toward a Philosophy of Technology."

[17] I.C. Jarvie, "Technology and the Structure of Knowledge" Philosophy and Technology: 54
[18] I.C. Jarvie, "Technology and the Structure of Knowledge" Philosophy and Technology: 54
[19] I.C. Jarvie, "Technology and the Structure of Knowledge" Philosophy and Technology: 54
[36] I.C. Jarvie, "Technology and the Structure of Knowledge" Philosophy and Technology: 55

Mario Bunge's essay "Toward a Philosophy of Technology" builds on the claim that technology is a form of knowledge and thus must follow the criteria set for research when studying it. Since research is often done in chronological order to allow a control-based experiment for rational human minds, knowledge must follow the same guidelines. The sets of rules, which follow a standard cycle, are what knowledge must follow in order to obtain an output. These rules are normative and they do not have to follow the same guidelines as laws, such as in the study of sciences, where laws are imperative and must be followed strictly. The idea is that there is a set requirement for a theory and that theory will have to be experimented on in a controlled setting to satisfy the rational mind. Hence, the application of the theory can only be complete if the rules have a base of evidence to find the theory correct, such as numerous counts of successful experimentation.

Science and technology are very similar, however as Mario Bunge writes,

> technological theories are richer than the theories of science in that-far from being limited to accounting for what may or does, did, or will happen regardless of what the decision maker does-they are concerned with finding out what ought to be done in order to bring about, prevent, or just change the pace of events or their course in a pre-assigned way.[20]

Such is the case that we can clearly see a connection between science and philosophy as well. If technology and science are similar according to their form and intrinsic behaviors then science itself must be a form of knowledge, and a study of being, thus it too is a problem of philosophy and can be regarded as such.

With this definition and realization about technology and science we can now gather the methods of theory and why some false theories prove to be of value even if

they are not true. The theories that we choose to use can be from the standpoint of practical use, such as in the case of herbal remedies, which have been in practice for generations and thus proving their value. However, the detailed analysis and understanding of pure science requires these theories to be based on laws and must account for each detail proving the remedies to be false. The application of even a false statement can be correct if we choose to practice it as such from that of a practical standpoint. The theories themselves have no relevant means but the actual usage and application of a theory even if the initial formulation is correct but the rest is false will still prove useful if applied in regular practice. In closing Bunge's point was that technological theories are richer then those in science because it does not have to follow the rules of what has to happen or what did, but that it ought to be a certain way.

3.2.D "Technics and the Nature of Man."

Lewis Mumford's "Technics and the Nature of Man" discusses the nature of modernization is society's ability to adjust to different technological advances over a period of time. The advances we discover in mathematics and the sciences allow us to assume more responsibility of the demand for advancement in technology. The advancement that we take part in is part of the ongoing evolution of society. The evolution of society is related to the evolution of technology in that they are dependent of one another. These advancements set a new form for others to benchmark at till society is ready to evolve once more. With this in mind Techniques and the Nature of Man, by Lewis Mumford discusses the changes that society takes as technology evolves from its present state to be more advanced. Mumford questions "both the assumptions and the

---

[20] Mario Bunge, "Toward a Philosophy of Technology" Philosophy and Technology: 63

predictions upon which our commitment to the present form of technical and scientific progress, as an end itself, has been based."[21]

Mumford feels that Karl Marx the father of eastern economics was wrong in assuming that "the instruments of production (have) a central directive function in human development,"[22] and that in reality it is vice verse, that society plays the directive function in technology and science. It is our constant striving to better our well being and to create convenience that proposes the evolution of technology.

"Man's over-whelming interest in tools, machines, technical mystery,"[23] have in actuality brought us to this point. The tools and machines, which are the means to our economic production and our constant search for technical innovations, are the mystery that we must satisfy to produce a technological culture. Our ability to use our "one primary all-purpose tool,"[24] mainly our body, not just the brain but our motor skilled human form has brought us to the point of technology. With all these necessary tools already in place we have realized that "technological expansions and transformations were less for the purpose of directly increasing the food supply or controlling nature than for utilizing his own immense internal resources, and expressing his latent superorganic potentialities."[25] In short man are out to seek political gain by advancements in technological-politics.

In order to identify all these forms of technology we must understand that the very first technological break-through were not for our "external environment: (but instead they were the) anatomical modification or the superficial decoration of the human body,

---

[21] Lewis Mumford, "Techniques and the Nature of Man" Philosophy and Technology: 77
[22] Lewis Mumford, "Techniques and the Nature of Man" Philosophy and Technology: 77
[23] Lewis Mumford, "Techniques and the Nature of Man" Philosophy and Technology: 78
[24] Lewis Mumford, "Techniques and the Nature of Man" Philosophy and Technology: 78

for sexual emphasis, self-expression, or group identification."[26] Early Egyptians wore jewelry and the Scottish wore kilts, which were early forms of technology. Jewelry and kilts were the application of knowledge from imagination to reality. Technology was a first means to show our skill in knowledge from our mind and our imaginations to the actual reality of objects. Jewelry is a key form of early technology, an application of imagination and creativity to reality. Why should man kind be any different from that of animals, as we are one too. The ducks have different feather colors to attract their mate and such humans wear jewelry among other things to attract themselves to one another. Since human beings are animals in the most primal instincts, it is proper to compare ducks to humans. Ducks through their knowledge of their surroundings and habitat have over time evolved as mankind has. Some ducks camouflage themselves from predators and some show different colors as a form of communication. This chapter is a profound evidence of ontology within technology and science.

3.2.E "Technology and Politics"

Man is a social being and thus we must look at our knowledge, ontology, science, technology and philosophy from that of our own societal views, similar to the methods we use to examine economy. Our society does not work alone but works in a combination of all things together in the form of association. So from the economic standpoint we should also look at technology and ourselves from the standpoint of domestic and foreign, discussing the elaborate means of direct and indirect influences. Technology is considered to be the means in which man puts to use the forces and laws

[26] Lewis Mumford, "Techniques and the Nature of Man" Philosophy and Technology: 81

of nature. Since the relation between human existence and technology is rooted in a fundamental aspect of human reality the direct influences are that affected by society. The indirect influences are the application of the industrial revolution where because of the boom in the technology society too had to change. Society is related to everything directly and indirectly by association there for we must assume that the political arena of our country is too related to this by association and is dependent on the evolution and transformation of the sciences, technology and of its people.

It is Nathan Rotenstreich's belief that the well being of a society is influenced by the modernity of its technology and that since our existence rests on our relations with nature, "any change in these relations will perforce leave their mark upon the internal human system."[27] Now this being true the political arena has set its grounds to undertake the change that these "set of means that mediate between man and nature is liable to become a political asset-that is, holding in the hands of a social or ruling force-and the object of struggle over its partial or complete control."[28]

Money is often equated with wealth, even if it is not the wealth of the heart or the peace of mind, it is the wealth of objects and physical value that we associate with in today's society. This view of wealth is important, since to acquire material wealth one would have to purchase objects, as it has been done through out history. The early settlers of Salem, MA, in the 1690s used to put extra nails on their front door as a sign of wealth and later times people would put portraits of their family and of scenery to show the valuation and riches of their family. Much like the nails and portraits of yesterday people place value on technology as well. The nails and portraits were later replaced by

---

[27] Nathan Rotenstreich, "Technology and Politics" Philosophy and Technology: 151
[28] Nathan Rotenstreich, "Technology and Politics" Philosophy and Technology: 151

television sets in people's homes and now computers replaced televisions. At what point does society draw a line on the valuation of technology and its association with politics? Karl Marx's ideals of equality where the knowledge is shared by all and the given economic resources are in rations is ideal only if the human traits of jealousy and greed is not involved. If human beings were of good and did not have the duality of good and evil then Marxism would be the ideal type of a society. Unfortunately this is not true of human beings.

3.2.F "Democratic Theory: Ontology and Technology"

C. B. Macpherson's "Democratic Theory: Ontology and Technology" discusses the economical views, which play a role in technological setting once again. The economic studies of scarcity, consumption, and demand of a society are discussed in depth. Macpherson wrote primarily on the basis of western democratic ontology. Ontology is defined as the branch of philosophy that deals with the truth of being. This essay discusses western views of liberal "individualists concept of man as essentially a consumer of utilities, an infinite desirer and infinite appropriator."[29]

Keeping with the intrinsic ideas of the nation and of its people it is important to understand especially in a commercial setting like the factories that even with the new technology that comes along a job market's views of liberal individualism must not be taken away. Work place culture and its ideals are important to the development of technology. The knowledge of culture allows us to create theory, which in turn is the intrinsic knowledge of truth. The democratic ontology requires an individualistic base

and an egalitarian complement. Then we can approach the overwhelming question of technology scarcity. Macpherson discusses the change in political theory and its ideology and its requirements. The requirements being, what is made "possible by technological change is the rejection of the concept of man as essentially an infinite consumer and infinite appropriator."[30] In this realization and acceptance that mankind is not the total consumer and the demand of technology is not always high brings society "closer (to) the realization of their concept of the human essence."[31]

3.2.G "Pursuit of Happiness and Lust for Power in Technological Society"

Simon wrote about the lust for power and happiness. He started this chapter by first defining the terms power and happiness. If "happiness is the all-embracing and naturally determined object of all acts of will, and in a certain sense it is improper to set in opposition happiness and, say, power, since no one seeks power except in as much as he places his happiness in it."[32]

If mankind or womankind or humanity is to be happy with its technological society it must endure the theories behind the use of technology, such that the theory of use can be applied. "Use is the act by which man applies a thing to some human purpose; it is the point where the universe of nature and the universe of morality come into contact."[33] By understanding this phenomena we can conclude that human freedom is a double-edged sword where moral good and moral evil can play on the beholder of this

---

[29] C.B. Macpherson, "Democratic Theory: Ontology and Technology" Philosophy and Technology: 161
[30] C.B. Macpherson, "Democratic Theory: Ontology and Technology" Philosophy and Technology: 168
[31] C.B. Macpherson, "Democratic Theory: Ontology and Technology" Philosophy and Technology: 169
[32] Yves R. Simon, "Pursuit of Happiness and Lust for Power in Technological Society" Philosophy and Technology: 171

trust. The individual has the ability to choose between good and evil. While the freedom was meant for the decisions of the good it does not hinder the individual when they do choose evil. Thus technology is the personification of its creator and can have good and evil.

The beholder or in this case society would have to come into contact with the "matters of use ((which)) can be divided into (1) external things, (2) the body and its organs, (3) Cognitive powers, (4) the will, ((and)) (5) the sense appetite."[34] In a sense it is this which gives us the understanding to explore the true lust for power, which "is sometimes an effect and an instrument of lust for wealth, and insofar as lust for power is subservient to lust for wealth, technology may cause the decline of lust for power."[35] By this we can conclude that technology is related to the lust of power and happiness by this association.

3.2.H "Man and Machine"

Nicholas Berdyaev's "Man and Machine" is about the techniques associated with technology. The technique of technology can be defined as the method of use. This method of use of technology has become man's destiny in that it gives purpose to our lives and a fixed form to use our knowledge of objective means. This destiny is a human being's culture. The culture of our society is to develop and use in practical means the knowledge by affective means of allocating our economic resources, therefore our goal in life is to supply our selves with knowledge and put to practice that knowledge.

---

[33] Yves R. Simon, "Pursuit of Happiness and Lust for Power in Technological Society" Philosophy and Technology: 173

[34] Yves R. Simon, "Pursuit of Happiness and Lust for Power in Technological Society" Philosophy and Technology: 173

Berdyaev discusses the technique in depth as a means to this knowledge. This essay sets a tone for the course to study what technique really is. Technique is the application of knowledge.

3.2.I "Christianity and the Machine Age"

Eric Gill's "Christianity and the Machine Age" discusses the affects of technological advancement on Christian beliefs. The development of technology has raised many questions about the relations between man and machine, man and organisms, and man and the cosmos. A universal question asking about the nature of god's role in the evolution of technology and is it god's will that technology be a part of our society? Eric gill believes that scientific knowledge is nothing more than the results where it is more or less accurately recorded, of more or less inaccurate observations.

This essay described the methods in which religion must change because of society's evolution with technology.

3.2.J "Technology and Man: A Christian View"

W. Norris Clarke's "Technology and Man: A Christian View" describes in detail the role of God in this modern age. The role of god is described as a manager, a mediator and a caretaker, where god's plan for man and universe was to use technology as an element in his plan for development. If we believe this to be true then we believe that

---

[35] Yves R. Simon, "Pursuit of Happiness and Lust for Power in Technological Society" Philosophy and Technology: 183

god is all knowing and that the knowledge is out there for mankind to find. Besides if technology is the element of man, then it is the partial activity of man and it can only be elevated when man is elevated, therefore when it is set in context of total reality then man could only be good. However since man is not always a good being, we realize that we are not elevating man to a higher standard, nor are we elevating technology.

This essay discussed the qualities of man that are required, such as being good to know technology at an elevated state, where by the technology is defined as all knowledge.

3.2.K "Technology in Its Proper Sphere"

Freidrich Dessauer"s "Technology in Its Proper Sphere," talked about the components of technical creation, the end of purpose, and the means of invention. Dessauer believes that it is critical metaphysics that states that it is nature of man that we must question in order to understand the technical creation of an object. That the object must serve some purpose in accordance with the laws of nature and correspond to the inner workings of technical creation. Dessauer states in this essay that the purpose is stated in the sphere, which is a grouping of individual or societal study, and that invention is a goal setting device with the capabilities to answer specific problems. In order for an invention to work it has to be in accordance with the laws of nature. Where by within limits and guidelines nature needs to work in harmony with technical works. The means to fulfill the technical workings are important because often the goal is altered during the course of the developmental techniques. Dessauer also believes that

there is a region or dimension called the fourth realm, where our individual knowledge is absorbed and stored. This knowledge is the creative influence, and imagination of possible futuristic technology which has not been developed but when transformed into reality there is immense power, much like in one atom of atomic energy, but greater. This power is not physical but philosophical and it is one of enlightenment. Dessauer discussed in depth the workings of human imagination with technology.

3.2.L "The Practical Uses of Theory"

Hans Jonas's "The Practical Uses of Theory" was about the aims and meaning behind knowledge as it is applied to use and activity. The theory of knowledge requires the goal and then the application and from that there are determinations of necessities and miseries with the application of knowledge. We all hold knowledge and when we apply it we find out that it might lack something or we might find out that is doesn't work at all, therefore we create additional theories and other means to forward us to the end, where we will discover the truth.

3.3 Technology and the Politics of Knowledge

This book is also a collection of essays by different authors and professionals on the subject of Technology and Knowledge. The book discusses in depth the realities of

technological implications on our society. Within politics it is the study of human interaction with each other and the knowledge of technological use that aids human beings in the development of wealth. These authors discuss the wealth of physical materials instead of the wealth of relaxation or wealth of self.

3.3.A Subversive Rationalization

Subversive rationalization was about the bases of technology, power and democracy. The combination of the three proves interesting, because the technology is where the political arena finds the power to deal with in democracy. The technology is defined as the use and application of knowledge. The knowledge is then used to create or fix tools, which are means of aiding in our every day lives. Small implements of our society as the telephone if discontinued can have severe damage to society. The laws of economic, such as supply and demand is applied here to see if technology is neutral, and to see if it is a product of rational problem solving. This essay talks about the implications that we, society have become incorporated into the mechanisms that we have created and thus are slaves of our own doing.

3.3.B Citizen Virtues in a Technological Order

With in this essay the philosophical arena and its changes from the classical to the modern forms of philosophy are discussed in depth. The essay states that there is a

redefined means of social and political arena concepts of power, authority, order, liberty, and equality which have become the modern analysis of technology within philosophical approaches. Human beings have taken a lack of interest in politics, where the role of knowledge and awareness is not always prevalent to them, so the few within society have been left to decide the role of technology within our society. This is not by fault of the individual but by fault of our economic and social frontier, where we are so interested in the productivity and profit that we are but controlled means in obtaining this goal and in essence are controlled in behavior. If to produce is the meaning of citizenship then we have fulfilled our duty and more, but it is not, therefore not understanding our philosophical role because of the gap between classical and modern philosophy we can not contribute. This is a paradox that if we do not contribute we can not produce but how do we contribute was the first question?

3.3.C The Moral Significance of the Material Culture

This essay discussed the use of practice and theory as a means of solving technology. Without the use of practice then there can be no formulation about the theory. However, that does not mean that we do not have technology. Once again if technology is described as the use of knowledge to enhance our better means of finding out the truth then in failure to produce a theory we have learned that the theory is not achievable. So in reality the practice is more important than the theory itself because of the realization. The practice might not be always correct but the knowledge gained is.

3.3.D Sade, the Mechanization of the Libertine Body, and The Crisis of Reason

This essay discussed the economic standards of capital, labor and land. The resources necessary in the development of production and then the marketing of the product produced. Production of materials does not always produce a means of income and fulfillment. The mechanization of Libertine body is the link between the certain model of body and the development of technology and industry

3.3.E Archimedean Point and Eccentricity

The essay was based on Hanah Arendt's studies compared to Werner Heisenberg's. The study of alienation from the world, history of physics, and processes of evaluation, is discussed in detail here. The technological and scientific culture is the new approach and a representation of it parallel standing of everyday approach.

3.3.F Gilbert Simondon's Plea for a Philosophy of Technology

This essay approached technology from the standing that it is a means of instrumental rationality. This essay seemed redundant of facts already stated.

4.0 Methodology:

The objective of this project was to create a course in Philosophy and Technology that would ultimately be used in a class setting. The methods in approaching this task were research, analysis of the research, then organization of the data. These few tasks created the project and allow for further development if needed.

First the project required a lot of research. Primary areas of research were that of the course material itself, and then the methods in teaching the course. These two areas were the keys to the project. The majority of the information was from books by published authors and professionals on the subject. However, the in course teaching methods and the organizations were composed of three parts. The personal hands on experience, witnessed teaching methods of professors at Worcester Polytechnic Institute, and the advice of professors proved to be sufficient in developing the organizational form of the course.

The project initially started out with a research agenda of about fourteen different books, ranging from philosophy, religion, morality, ontology, technology, and science. This was narrowed down to three main books, which were primarily used to develop the project. The other books were good but lacked the information that these three main books supplied. The books not used can still be considered as additional reading material for the course if students feel a need to read more.

The organizational part of the project was composed into segments. First the syllabus, the handouts and the power point slides that go with the handouts. This course was designed using all the media capabilities that Worcester Polytechnic Institute has to

offer and that professors in a wide range of classes have used before. The course itself is a combination of visual, self and group learning methods. If possible the course would be on the web, where students can access the notes and power point slides, preparing for class by printing these out for the class.

The syllabus was an attempt to make the course look official like the other courses offered at a college or a university. A little imagination and some cut and paste skills provided an official looking syllabus, with the prospective course objectives, and grade components incorporated in it.

The handouts were generated using a format that professor Kathryn Wilkins of Worcester Polytechnic Institute's Management Department had used. The handouts are marked with specific notes on the left-hand margin while the main text or the bulleted texts are written to the right of the special marks. She used a table of contents at the beginning of each hand out, and had additional notes marked on the side to show where additional information could be found. Along with her handouts, to develop the handouts for Philosophy and Technology the project used the organizational pattern of the American Red Cross textbooks. These textbooks have a key terms page and a review page at the beginning of each chapter. If the classes are organized in sequence like that of chapters and the handouts are done according to class then we can conclude that the handouts can also be organized into chapters.

Finally the power point slides have been an effective visual tool in many classes taught at Worcester Polytechnic Institute. Thus the power point slides were incorporated to teach visual learners and to diversify the learning experience of the student as well. With the aid of the power point slides the key facts and information that a student should

have received from the studies is noted, and the professor has the ability to go at a faster pace allowing the students to learn more in a shorter amount of time. Since time is not wasted for a student to copy the notes from the board, the professor has the capability to either spend more time going over specific materials or teaching more information to the class.

The course then was composed of visual, self and group learning tools. The course incorporated all these aspects in order for a student to get a full spectrum grasp of the course, and thus we have our final outcome; a course in Philosophy and Technology.

5.0 Analysis & Results:

Unfortunately to test out this course would require a professor and an actual class. To consider it a success the project would have to undergo analysis by professionals within the field, such as professors who teach on a day to day basis. Without this support there was no actual basis for Analysis and thus the project has produced no results other than the syllabus, the handouts and the power point slides themselves. However, the project is a prototype and the first of it existence at Worcester Polytechnic Institute. Therefore the project is a proposed synopsis of the material that could be presented within the course, in theory, and not a set standard of what should be included in such a course titled Philosophy and Technology.

6.0 Conclusions:

This project was interesting in that it showed a link between human thought processes about technology and philosophy; how all aspects of life in one way or another are linked through association with each other. This project showed that through knowledge an intrinsic idea of philosophy we can associate all parts of our daily routine to another. Technology is the application and the use of knowledge. The application and the use of knowledge is the ideal understanding in the study of metaphysics, which in turn is a branch of philosophy and if one studies metaphysics then ontology and philosophy are close by too. The final conclusion of this project can be only made by discussing the use and application of technology, which we have discovered to be a form of philosophy, and its role in society today. This project has proven technology's role within philosophy and we have found Philosophy and Technology to be self-evolving, much like that of our society. However many people feel that the application and use of technology is not philosophy and that technology is chronological, where the inventions have a predecessor which was worse then the existing convenience.

Technology is the new and innovative method of he future. Since technology evolves as society does, we can only presume it to move in a forward direction. Human society has progressively moved forward finding new and innovative means to age-old problems. The finding of gun powder, new elements on the periodic table, and sending a man to the moon are all feats produced my mankind's ingenuity and continuous search for knowledge. So in this sense we can conclude that technology is chronological and to

survive society must value its relations with technology and follow it. This would require society to change as more advanced equipment and conveniences are invented.

However, can technology really be considered an intricate part of our every day lives? The knowledge that we used to acquire more knowledge is not in itself technology. Instead technology is the application of this knowledge to find answers to the truth that we seek in knowledge. So how can technology be considered nothing more than a tool? Technology is nothing more than the means to approaching a set goal. Therefore if society becomes too dependent on technology, it would mean the total loss of control and human relations. Human beings are social beings, one that requires interaction with other beings of its kind, and within our relations with others we seek knowledge and reason. As we interact within our own surroundings we seek to learn from another but this learning can only take place if we understand the subject within reason. So in actuality human beings are social and rational beings. When human beings play a game of baseball between two teams we seek a winner and a loser. Those are the two final outcomes of the game. Much like the baseball game when society looks upon technology it should be a tool, a means of approaching our final goal. If technology is given its freedom and majority of the responsibilities within our lives then where would our social nature be and how would we rationalize the faults of a machine?

These questions and statements about technology makes this project so much harder to end. The study of Philosophy and Technology can never truly end as long as there is a society willing to advance itself in knowledge and seeking the truth. Therefore it is safe to say that technology in its purest form is a study of philosophy.

7.0 Recommendations

The course is best taught using the tools that were incorporated to teach this course initially. The students to get their grades, handouts, and copies of the power point slides prior to the start of each class should avidly use the web. This will cut down on the amount a professor needs to write on the board, and even possibly eliminating the need for a textbook, thus cutting down on the expenses a student endures. The course is best taught when all aspects of the project are incorporated at the right time to enhance its full effect and student's self-realization of the course material at hand. Copies of the course material that might not be offered in the handouts should be placed at the library where students again have the opportunity to find and makes copies of this added information as well.

Works Cited:

- Berdyaev, Nicholas. "Man and Machine" Philosophy and Technology.

- Borgmann, Albert. "The Moral Significance of the Material Culture." Technology and the Politics of Knowledge.

- Bunge, Mario. "Toward a Philosophy of Technology" Philosophy and Technology.

- Clarke, W. Norris. "Technology and Man: A Christian View" Philosophy and Technology.

- Dessauer, Freidrich. "Technology in Its Proper Sphere" Philosophy and Technology.

- Dumouchel, Paul. "Gilbert Simondon's Plea for a Philosophy of Technology" Technology and the Politics of Knowledge.

- Feenberg, Andrew. Alastair Hannay. Technology and The Politics of Knowledge. Bloomington, IA: Indiana University Press, 1995.

- Feenberg, Andrew. "Subversive Rationalization Technology, Power, and Democracy" Technology and the Politics of Knowledge.

- Feibleman, James. "Pure Science, Applied Science and Technology: An attempt at definitions." Philosophy and Technology.

- Gershenfeld, Neil. When Things Start to Think. NY, NY: Henry Holt and Company, 1999.

- Gill, Eric. "Christianity and the Machine Age" Philosophy and Technology.

~ **Henaff, Marcel. Anne-Marie Feenberg. "Sade, the Mechanization of the Libertine Body, and the Crisis of Reason." Technology and the Politics of Knowledge.**

~ **Jarvie, I.C. "Technology and the Structure of Knowledge" Philosophy and Technology.**

~ **Jonas, Hans. "The Practical Uses of Theory" Philosophy and Technology.**

~ **Mackey, Robert. Carl Mitcham. Philosophy and Technology. NY, NY: McMillan Publishing Company Inc., 1983.**

~ **Macpherson, C.B. "Democratic Theory: Ontology and Technology" Philosophy and Technology.**

~ **Mumford, Lewis. "Technics and the Nature of Man" Philosophy and Technology.**

~ **Rotenstreich, Nathan. "Technology and Politics" Philosophy and Technology.**

~ **Simon, Yves R. "Pursuit of Happiness and Lust for Power in Technological Society" Philosophy and Technology.**

~ **Tijmes, Pieter. "The Archimedean Point and Eccentricity" Technology and the Politics of Knowledge.**

~ **Winner, Langdon. "Citizen Virtues in a Technological Order" Technology and the Politics of Knowledge.**

Appendices

Appendix A:

Worcester Polytechnic Institute

PY234X
Tuesday and Friday 2:00-3:50 PM

Office Hours -Salisbury Lab Room B57

Regular office hours are at 1-2 PM Monday through Friday. Usually I respond to email and voice mail within 24 hours.

Overall Course Objectives

Through out our daily lives one rarely asks about the importance of technology In this course we will study the application of Philosophy within technology. The terms alone mean entirely different from that of the combined defintion. Studying from various sources, we will explore the fundamentals of knowledge, metaphysics, ontology, modernity, and philosophy. The goal of this course is to make you aware of society's dependency on technology, what technology is, and where technology came from. You will be challenged to ask yourself questions such as "is technology good, or is technology bad?"

Tenative Class Schedule

Class	Topic	Assignment	Class Due	Grades
1	Introduction	Precis 1 and read WTST	2	
2	Bits and Books. WTST	Precis 2 and read TPK	3	
3	Rationalization. TPK	Team Org., read WTST	13, 4	
4	Rights. WTST	read PT	5	
5	Pure Science, PT	read PT	6	
6	Review E1, politics, PT	Group topics	7	
7	Exam 1	read TPK	8	
8	Moral, TPK	Precis 3, read TPK	9	
9	Eccentricity, TPK	read PT	10	

Class	Topic	Assignment	Class Due	Grades
10	Man & Machine, PT	Precis 4, and read PT	11	
11	Proper Sphere, PT	read PT	12	
12	Theory, PT	Group write ups	13	
13	Review E2, Presentation	Study for Exam	14	
14	Exam 2			

Class Materials

Required: 1) Lectures and lecture supplements will be posted on the class web-site at **http://courses.wpi.edu/courses/PY234X**
each weekend, so that they are always available in advance of class. Directions for enrolling on the site are available at **http:/courses.wpi.edu/**. Please direct further questions about using this system to **blackboard@wpi.edu**.
Print and organize the class lectures in a notebook and bring the notebook to class. Be sure that your notebook in always up to date. In addition, you should bring a calculator to all classes.

Homework assignments are always posted on the class web-site under "Assignments".

Grades

There are 8 components to your total grade

Grade Components:

1: Precis #1 (10%)
2: Precis #2 (10%)
3: Exam 1 (20%)
4: Precis #3 (10%)
5: Precis #4 (10%)
6: Group Project (10%)
7: Exam 2 (20%)
8: Participation (10%) = Individual Attendance (4%) + Class Participation (6%)

Grading Policies

You will not be competing with each other for particular grades in the class. Letter

grades on paper and as final grades indicate

A An excellenct understanding of assignments; excellent mastery of material, concepts, and compelling original thought.

B Good understanding of assignments; good mastery of material and concepts and some original thought.

C Enough understanding of assignments and issues raised in the class to satisfy requirements and receive full credit.

NR No Record. Not deserving College Credit.

All assignments must be submitted in order to pass the course.

The Importance of Collaborative Learning

Teamwork has several advantages. First, using teams in a classroom setting will help you make the adjustment to working in small groups. Second, only lecturing at you won't accomplish my ultimate goal of having you learn the material. To really absorb the material you must be able to apply the knowledge you have acquired. Finally, working with one's peers is a proven and effective way to improve individual performance.

Reading Writing and Discussing

You must do the reading in preparation for class time if you are to benefit from this class. The reading assignments listed by class should be completed in their entirety AT LATEST prior to the class of discussion. You should think about taking notes on the reading as well as highlghting or underlining the text as you read it. This will force you to digest the material in a way that will give you a better grasp of its significance and the argument presented (if there is an argument presented).

You will also be required to write precis on the readings, due at the beginning of the next class after the assignment is discussed. For more specific instruction, see the section in course requirements that deals with precis.

Given the size of the class, we will have to work hard at establishing discussions. I encourage you to ask questions and engage the issues with me, so that it will not be an unbroken monologue on my part.

I am convinced that discussion is the best way of learning when the topic under consideration is philosophical. So I will encourage all of you to be prepared to take part; thus the heavy emphasis on class preparation and thoughtful reflection. I expect you to try to contribute to class discussion in significant ways. I think of philosophy and a practice - a way of asking and answering questions and you don't become good at anything that is a practice by simply sitting back and watching. So you must try to become involved in the practice. You might be wrong; your fellow students might disagree with you - so what? Such little discomfort will be a small price to pay for the skills you will develop by taking part in the discussion.

Course Requirements:

1 **Class Participation and preparation:** (10% of your final grade) I am putting such emphasis on class participation and preparation because of my sense of the importance of a) coming to class with significant preparation; b) the value of learning from your classmates as well as from me; c) a willingness to take risks and put forward your views and ideas for everyone to share. Implicit in the high value I place on class preparation and participation is an undertanding of the importance of regular class attendance on the part of even one member can ruin the dynamics of the class.

2 **Precis:** (40% of your final grade) Due the next class after the discussion of the assignment. A precis is a short synopsis of an argument and a short indication of its implications. I will give you a choice of writing on the topic I assign or choosing your own topic, but in either case, make clear to me what the topic/question is that you are writing about. The precis must be 600 words or fewer. Please append a word count to the first page of the pater. Unless arrangements are made with me before the day the paper is due, late papers will receive credit for being turned in only.

3 **Exams:** (40 % of your final grade) The exam setups will be told to you two

classes prior to the exam date. They will be a combination of multiple choice, true and false, and essay type questions.

4 **Group Project:** (10% of your fincal grade) Your group project will consist of no more than four people to a group. The group can choose any topic related to the course. They must question whether technology has played a significant role or not. You may choose any item, society, financial market, or etc.. Support your project with findings from course materials or other readings. The group will be required to do a write up on the project. The write up should be fewer then seven pages. You must include an abstract, and a works cited page.

Appendix B:

Philosophy and Technology

CLASS 1

Philosophy and Technology

Philosophy and Technology

Class 1.

Objectives:

- **Introduction**
- **Course outline**
- **Required Materials**
- **Grade Components**
- **Discussion of terms**
- **Key Terms**
  - ~ **Philosophy and Technology**
  - ~ **Religion**
  - ~ **Ethics**
  - ~ **Morality**
  - ~ **Technology**
  - ~ **Metaphysics**
  - ~ **Ontology**
  - ~ **Modernity**
  - ~ **Science**
- **Scientific Method**
- **Assignment for next class**
- **Coming Attractions**

INTRODUCTION TO THE COURSE

This course is a study of Philosophy and Technology. The overall course objective is to findout how is philosophy associated with technology, what is technology, and how does technology affect our society.

KEY TERMS

In order for us to understand the course, we need to understand the definitions.

Religion:

~ The belief in and reverence for a supernatural power or powers regarded as creator and governor of the universe.

~ Religion is a set of beliefs, values, and practices based on teachings of spiritual leaders.

Ethics:

~ A set of principles of right conduct

~ A theory or system of moral values

~ The rules or standards governing the conduct of a person or the members of their profession

Morality:

~ The quality of being in accord with standards of right or good conduct.

~ A system of ideas of right and wrong conduct

Technology:

~ An application of science, especially to industrial or commercial objectives.

~ The body of knowledge and techniques which can be used to produce goods and services from economic resources.

Science:

~ The observation, identification, description, experimental investigation and theoretical explanation of phenomena

~ Such activities applied to an object of injury and study.

Philosophy:

~ The search, by logical reasoning, for understanding of the basic truths and principles of the universe, life and morals, and of human perception and understanding of these.

~ A system of ideas concerning this or a particular subject, a system of principles for the conduct of life.

Metaphysics:

~ A branch of philosophy that deals with the nature of existence and of truth and knowledge.

Ontology:

~ A branch of philosophy that deals with the nature of being

Modernity:

~ Being modern or something modern

** The definitions are taken from a dictionary. **

PHILOSOPHY AND TECHNOLOGY

According to the literal definitions in Key Terms we can already see the association between Philosophy and Technology.

The combination of all or portions of the definitions develops the desired effect of our society.

We understand the definitions to be literal meanings of the words themselves. Then by this we can clearly see the association, between technology and metaphysics through their common understanding of knowledge. If we recognize the bond between technology and metaphysics, then we must recognize the relations between metaphysics and philosophy too.

Technology is a form of knowledge and hence is part of philosophy. We can even go as far as to say that it is philosophy.

By looking at the definition of Philosophy and if it is the study of truth and knowledge as it applies to the universe, then we can brake that up and study it in segments too.

Universe --> World --> Continents --> Nations --> Individuals.

~ How would a scientist think when developing new technology?
~ Do they often ask the impact the invention would have on our economy and if so will that impact be positive or negative?
~ What are some of the ways that technology has helped society in the past?
~ What modern convenience would be absolutely necessary in order for you to live, and would you be able to survive with a supplemental tool?

Philosophy and Technology

Class 1.

Assignments:

1. **Do an analysis of religion, ethics, morality, and how it applies to technology and science, or why it does not.**

~ **Write a 500 word essay on the topic.**
~ **Due next class.**

2. **Read *When Things Start to Think. "Bits and Books".***

Coming Attractions:

Read Chp. 1 in *Technology and Politics of Knowledge*, titled "*Subversive Rationalization: Technology, Power, and Democracy*".

CLASS 2

Philosophy and Technology

Philosophy and Technology

Class 2.

Objectives:

- **Collect Assignment 1**
- **Review of Class 1**
- ***When Things Start to Think***
- **Bridging the Digital and Physical World**
- **Digital Revolution**
- **Digital Reality**
- **Things that think**
- **Bits and Books**
- **Book-of-the-future**
- **Object Control**
- **Forms of Communication**
- **Key Terms**
  - ~ **Philosophy and Technology**
  - ~ **Technology**
  - ~ **Forms of Communication**
  - ~ **Telephone**
  - ~ **Guttenberg Press**
- **Assignment for next class**
- **Coming Attractions**

REVIEW OF PREVIOUS MATERIAL

Primary Points:

REVIEW

~ Definitions are the fundamental basics to this course.

~ Technology is a form of Metaphysics, which in turn is a form of Philosophy.

~ Is society a victim of convenience or still using convenience as a means of a tool and does not require it to survive?

UNDERSTANDING TECHNOLOGY

Discussion

In order for us to understand technology, we will discuss society's views about technology. Today's stereotypical views of technology or misinterpretations of technology are great clues to finding out where and why these views altered with the real meaning and true understanding of technology.

Discussion

Technology is self-evolving. It evolves as society evolves because they are dependent on eachother.

WHEN THINGS START TO THINK

By: Neil Gershenfeld.

BITS AND BOOKS

This book will allow us to view the reasons why convenience and technological advancement is important, but if these advances do not involve human interaction, then perhaps technology has become more then a tool or an aid in knowledge. Technology has become a disease and like a drug addiction we require it to survive.

Power Point Slides

Book-of-today

~ Hard or soft covers
~ Bound at a printing press
~ Requires paper and ink
~ Can be seen with the aid of an external light source
~ Creates a mood when you read it
~ Very personable
~ Enjoyable

Book-of-the-future (CD-Rom)

~ Boots instantly
~ Has a high-contrast, high-resolution display
~ Is viewable from any angle, in bright or dim light
~ Permits fast random access to any page
~ Provides instant visual and tactile feedback on the location
~ Can be easily annotated
~ Requires no batteries or maintenance
~ Is robustly packaged

Regardless of the type of ambient light a good old book can be read at any angle any where. However, the book-of-the-future comes with a backlight, but its own light source is constantly competing with the ambient light that it is very hard to view the screen from different angles.

Optical weak localization. A process in which individual cells of radiant light spreads through out an uneven surface, but because of the large numbers of bumps the light is spread out giving an even glow to the surface regardless of its actual surface fixture.

Microencapsulation. A process in which tiny shells of one material are grown around a core of another one. An example would be the carbonless copy paper. The small shells actually contain small particles of ink which do not brake until applied a force to them. Amazingly this too is a form of an advancement in technology!

A BOOK

"The electronic book ends the argument over old-fashioned books versus new-fashioned bits by recognizing that both sides have strong technical cases that can be combined."
(Pg. 19)

So the best method of creating a book is to emulate and adapt to the old technologies in a book so that it will work in the same manner for the book-of-the-future.

Power Point Slides

Guttenberg Press.

~ Ink contained oil, copper and lead. Appealing to the human eye.

Possibilities for the book-of-the-future is the extinction of libraries. A laptop like book, which "can rearrange the ink as needed for each page. Instead of going to the library to check out a book, the bits of a book can be downloaded onto the pages of an electronic book."
(Pg. 19)

Discussion

~ What would be the good and the bad of modernizing our methods in using books?
~ What are the advantages and disadvantages of using a modern book?
~ What would happen to libraries across the globe as a result of computerized indexes?

Discussion

~ What are some of the methods of communication for our society if books became technology based?

~ Is society a victim of modern day communication?

~ Is it more important to have human involvement and interaction or to learn from a machine?

~ What are examples of some things that think?

Philosophy and Technology

Class 2.

Assignments:

1. **Why did Neil Gershenfeld feel that the book was not coming to an end but a new beginning?**

~ **Write a 500 word essay on the topic.**
~ **Due next class.**

2. **Read *Technology and the Politics of Knowledge, "Subversive Rationalization: Technology, Power, and Democracy"* for the next class.**

Coming Attractions:

- **Read *When Things Start to Think, "Rights and Responsibilities.***

- **Think about possible partners for a group project. You may have up to two or three partners. Do not exceed four people per group.**

CLASS 3

Philosophy and Technology

Philosophy and Technology

Class 3.

Objectives:

- **Collect Assignment 2**
- **Review of Class 2**
- ***Technology and The Politics of Knowledge***
- **Technology as Ideology**
- ***"Subversive Rationalization: Technology, Power, and Democracy"***
- **Technology a part of our need to control and stabilize**
- **Technology socially and ethically neutral?**
- **Dystopian Modernity**
- **Technological Determinism**
- **Constructivism**
- **Indeterminism**
- **Interpreting Technology**
- **Technological Hegemony**
- **Double Aspect Theory**
- **The consequences of Technology and its essence**
- **Assignment for next class**
- **Coming Attractions**

REVIEW OF PREVIOUS MATERIAL

Primary Points:

REVIEW

~ Bits and Books

~ Book-of-today

~ Book-of-the-future

~ Libraries

~ Printing methods

~ Guttenberg Press

TECHNOLOGY AND THE POLITICS OF KNOWLEDGE

TECHNOLOGY AS IDEOLOGY

"SUBVERSIVE RATIONALIZATION: Technology, Power and Democracy"

Discussion

~ "Is technology socially and ethically neutral, a product of rational problem solving, or is it... a kind materialized ideology, a prop of the established society?"
(Pg. 1)

KARL MARX

~ "Marx saw this situation coming in the middle of the nineteenth century. He argued that traditional democratic theory errored in treating the economy as an extra-political domain ruled by the natural laws of supply and demand."
(Pg. 3)

Discussion

~ How does economics tie in with technology and science?

~ Why is technology a part of our need to stabilize and control?

~ How does the search for knowledge and control tie in with Supply and Demand?

Power Point Slides

DYSTOPIAN MODERNITY

~ "Rationalization is the increasing role of calculation and control in social life, a trend leading to what (may) be called the 'iron cage' of bureaucracy."
(Pg. 4)

Discussion

~ What does this quote mean?
~ Do you think that the quote is a means of starting an argument about back-to-nature ideologies?

Ellul's theory:

~ "We (society) have become little more than objects of technique, incorporated into the mechanism we have created."
(Pg. 5)

Marshall McLuhan

~ Once he stated that "technology has reduced us to the 'sex organs of machines.'"
(Pg. 5)

Technology

~ Is in reality a form of autonomy, where their social sources and impacts are hidden.
~ It is a particular feature of our society and not a universal dimension of modernity.

TECHNOLOGICAL DETERMINISM

~ Technology is presumably social only through the

purpose it serves, and process are in the mind of the beholder. Technology would thus resemble science and mathematics by its intrinsic independence of the social world.

~ Unlike math or science, technology has immediate and powerful social impacts.

~ Society's fate is at least partially dependent on a nonsocial factor which influences it without suffering a reciprocal influence.

(Pg. 5)

~ Technological progress proceeds from lower to higher levels of development; and that development follows a single sequence of necessary stages.

Discussion

How true is the above statement? Does the methods of technological progress differ from that of the development, and if so which is independent of the other?

Is there a supposed "trade off" between prosperity and environmental ideology?

DETERMINISM

~ implies that our technology and its corresponding institutional structures are universal, indeed planetary, in scope.

~ despite the many forms of tribal society, feudalism and early capitalisms, there is only one modernity and it is exemplified in our society.

(Pg. 6)

A method of making the solution seem inevitable from the beginning by projecting the abstract technical logic of the finished object back into the past as a cause of development.

Discussion

Do you think that modernity is exemplified in our society, why or why not?

CONSTRUCTIVISM

~ There are a surplus of workable solutions to any given criteria, where social actors make the final choice amongst the technically viable options

~ The problem definition often changes in the course of the solution and the latter point is more conclusive, but also the more difficult of the two.

Discussion

Such an example of this situation would be the invention of the Bicycle.

~ The high-wheeler

~ The safety bicycle

INDETERMINISM

~ In the case that unilinear progress proves to be false, then our basic understanding of technology according to determinism can't be far behind.

~ Then technology would be not unilinear and it would branch out allowing technology to reach higher levels along more than one different track.

~ Then technological development is not determining for society but is overdetermined by both technical and social factors.

INTERPRETING TECHNOLOGY

~ Technology is non-deterministic.

~ It is not the collection of devices, or the sum of rational means.

~ Technology is not as functional as society stereotypes it as. It is more social in its application.

~ If one ignores most of the connections between technology and society, it is no wonder that technology then appears to be self-generating.

Social Meaning

~ The concept of a goal strips technology bare of social contexts, focusing the social influence of engineers and managers so that they will only find out what they need to know to complete the task at hand.
(Pg. 9)

Cultural Horizon

~ Technology is in the perception of its social counterpart and thus is more social in nature then functional. Such as in the case of the Minitel.

TECHNOLOGICAL HEGEMONY

Hegemony: It is a form of domination so deeply rooted in social life that it seems natural to those it dominates. One might also define it as that aspect of the distribution of social power which has the force of culture behind it.

~ Rationalization is our modern horizon, and technological design is the key to its effectiveness as the basis of modern hegemonies.
(Pg. 11)

DOUBLE ASPECT THEORY

Social meaning and functional rationality are inextricably intertwined dimensions of technology. They are not ontologically distinct, for example, with meaning in the observer's mind and rationality in the technology proper. Rather they are "double aspects" of the same underlying technical object, each aspect revealed by a specific contextualization.
(Pg. 12)

THE CONSEQUENCES OF TECHNOLOGY AND ITS ESSENCE

Technology it self is destructive. It threatens the world today.
It is not neutral, but instead technology's substantive matter of design and social insertion affect society independent of the goals they serve within it.

Through our understanding we have gathered clues to technology's social behavior, thus it would one be correct to assume that technology is a social being. Therefore, in society's ambitions to control a being is itself a way of being and hence subordinate at some deeper level to an ontological dispensation beyond human control.
(Pg. 17)

Philosophy and Technology

Class 3.

Assignments:

1. **Read *When Things Start to Think, "Rights and Responsibilities.* for the next class.**

2. **Finalize your group partners by next class and submit the names within your group.**

Coming Attractions:

- **Read *Philosophy and Technology*. There are four essays.**
  - ~ ***Pure Science, Applied Science, and Technology***
  - ~ ***Technology and the Structure of Knowledge***
  - ~ ***Toward a Philosophy of Technology***
  - ~ ***Technics and the Nature of Man***

CLASS 4

Philosophy and Technology

Philosophy and Technology

Class 4

Objectives:

- **Review of Class 3**
- ***When Things Start to Think***
- ***"Rights and Responsibilities"***
- **Phone, Computer, CD player**
- **Set rules and directions. (Code)**
- **A user's rights**
- **An item's rights**
- **Digital rights and human aspects**
- **Discussion of economic and market effects**
- **Assignment for next class**
- **Coming Attractions**

REVIEW OF PREVIOUS MATERIAL

Primary Points:

REVIEW

~ Ellul's theory

~ Marshall McLuhan

~ Karl Marx

~ Technology is presumably social.

~ Technological progress and development

~ Determinism

~ Constructivism

~ Indeterminism

~ Social Meaning and Cultural Horizon

~ Hegemony

~ Double Aspect Theory

WHEN THINGS START TO THINK

Rights and Responsibilities.

~ The story of Martin Luther and his Ninety five theses.

~ Guttenberg Press a threat to handwritten manuscripts.

~ We are now worried about the means of communication

~ We should worry less about control of the means of communication, and more about the control by the means of communication.

Power Point Slides

MEANS OF COMMUNICATION

~ Telephone

~ Computer (emails.)

~ Video Conferencing

In the example of the telephone we allow ourselves to be over-run by our conveniences. The telephone calls us, whether we are in the

shower, sleeping, eating, or whatever we may be doing at any time when it rings we answer. We allow convenience to take hold of us in a way that we do not allow those even the closest friend or spouse to do so.

~ The only reason why convenience over-runs our life is because society has a hard time of understanding that technology is social and that we still in some form feel that we are in control of our conveniences.

BILL OF THINGS USERS' RIGHTS

You have the right to:

~ Have information available when you want it, where you want it, and in the form you want it

~ Be protected from sending or receiving information that you don't want.

~ Use technology without attending to its needs.

~ Freedom of religious expression vs. Freedom of technological expression.

~ Despite our fall from control, since technology is of social in nature it too must have rights.

BILL OF THINGS' RIGHTS

Things have the right to:

~ Have an identity

~ Access other objects

~ Detect the nature of their environment.

EMAIL INFLATION

~ Rights of the things and the users define a new notion of behavior, shared between people and machines, that is appropriate for a new era.

~ Reply to every message and then with everyone being as courteous you will have received a greater dividend of messages, and thus an increase in returned messages and the vicious cycle begins again. So you are responsible for contributing to e-mail inflation.

Philosophy and Technology

Class 4.

Assignments:

1. **Read *Philosophy and Technology*. There are four essays.**
   - ~ ***Pure Science, Applied Science, and Technology***
   - ~ ***Technology and the Structure of Knowledge***
   - ~ ***Toward a Philosophy of Technology***
   - ~ ***Technics and the Nature of Man***

   for next class.

Coming Attractions:

- **Read *Philosophy and Technology*. There are three essays.**
  - ~ ***"Technology and Politics"***
  - ~ ***"Domestic Theory: Ontology and Technology"***
  - ~ ***"Pursuit of Happiness and Lust for Power in Technological Society"***

CLASS 5

Philosophy and Technology

Philosophy and Technology

Class 5.

Objectives:

- **Review of Class 4**
- ***Philosophy and Technology***
- ***"Pure Science, Applied Science, and Technology"***
- **Technology**
- **From Practice to Theory**
- ***"Technology and the Structure of Knowledge"***
- **Knowledge**
- **Metaphysics**
- ***"Toward a Philosophy of Technology"***
- **Truth and Action**
- **Technological Rule**
- **Technological Forecast**
- ***"Technics and the Nature of Man"***
- **Assumptions and Predictions**
- **Technology's beginnings**
- **Assignment for next class**
- **Coming Attractions**

REVIEW OF PREVIOUS MATERIAL

Primary Points:

REVIEW

~ Means of communication

~ Bill of things users' rights

~ Bill of things' rights

~ Email Inflation

PHILOSOPHY AND TECHNOLOGY

Power Point Slides

"PURE SCIENCE, APPLIED SCIENCE, AND TECHNOLOGY"

By: James K. Feibleman

~ Pure science or basic research is a method of investigating nature by the experimental method in an attempt to satisfy the need to know. It is the process of searching for knowledge.

~ Applied science refers to the use of pure science for some practical human purpose.

~ Scientific method leads to two outcomes. It can be one of explanation or application.

~ Pure Science seeks to understand nature.

~ Applied science seeks to control nature.

TECHNOLOGY

Page 36

~ Technology is more apt to develop empirical laws than theoretical laws which are generalizations from practice rather than laws which are intuited and then applied to practice.

~ Technology is made up of two components. The ideals and materials make up technology.

~ Technology is limited by the resources that are available.

~ Methods peculiar to technology are: trial and error, invention aided by intuition.

Discussion

Do you think that pure science works in hand with applied science and technology? If so then how are they similar or how are they different?

Power Point Slides

Page 39

FROM PRACTICE TO THEORY

~ In society's efforts to find answers to practical ends, abstract principles of science are discovered.

~ Probability, Thermodynamics, Hydrodynamics function theory, Aerodynamics, and etc.

~ Technology has long been an aid and has furnished an impetus to experimental science

~ The skill of the Venetian glass blowers was made possible by Torricelli's experiments on gases.

~ Applied science and technology can not be independent of pure science.

"TECHNOLOGY AND THE STRUCTURE OF KNOWLEDGE"

By: I. C. Jarvie

~ Technology is only a part of the logical structure of our knowledge.

~ Our knowledge can be regarded as a substructure under technology.

~ Technology and knowledge are related to eachother.

~ Knowledge is what physicists call the "initial condition"

~ Knowledge is part of man's multiform attempts to adapt to his environment which we call his technology.

~ Technology has different aims from science.

~ Technology aims to be effective rather than true, and it can be one without the other.

~ Technology is knowledge of sorts that we can call "know how"

KNOWLEDGE

~ When society refers to knowledge, we are talking about the knowledge of truth, which is not the same as effectiveness.

~ However, knowledge of truth is knowledge of effectiveness too.

~ It is the true knowledge of what is effective. It is not true knowledge of why it is effective; it does not explain anything. But it is part and parcel of the whole truth.

~ Technology is the application of planning and engineering of know how.

~ The know how of how an item works is knowledge.

~ Knowledge is hence the application of technological know how in all matters of object and use.

METAPHYSICS

~ The nature of existence and of truth of knowledge.

~ Technology is knowledge because of its use of applied science

~ The knowledge of truth and the knowledge of effectiveness which is applied to technology can be considered the study of metaphysics which in turn can be the study of philosophy.

"TOWARD A PHILOSOPHY OF TECHNOLOGY"

By: Mario Bunge

Page 62

In science whether pure or applied, a theory is both the culmination of a research cycle and a guide to further research.

Power Point Slides

TRUTH AND ACTION

~ As an act is regarded as rational, it is adequate to set a goal, where the goal and the means to achieving that goal are chose deliberately using the best available and relevant knowledge.

~ A theory may have a bearing on action either because it provides knowledge regarding the objects of action.

~ Looked at from a practical angle, technological theories are richer than the theories of science in that - far from being limited to accounting for what may or does, did, or will happen regardless of what the decision maker does - they are concerned with finding out what ought to be done in order to bring about, prevent, or just change the pace of events or their course in a prearranged way.

~ A theory is true if it can be employed in applied research, and in the practice of itself.

~ False theories can work because of the use in practical functions where the accuracy of the standards are lower in applied science and practice from that of the pure research and thus they are not limited to a set of strict guidelines to follow, but instead a regulated form of trial and error.

TECHNOLOGICAL RULE

As pure science focuses on objective patterns or laws, action orientated research aims at establishing stable norms of successful human behavior.

~ The study of grounded rules of applied science is central to philosophy of technology.

~ If we define rule as being the finite number of acts in a given order and with a given aim, then we understand that technology must follow this basic idea

~ Unlike a law a rule is not imperative, but it is normative.

- ~ Rules of conduct
- ~ Rules of prescientific work
- ~ Rules of sign
- ~ Rules of science and technology

~ Some might state that a rule is only effective if it shows a high percentage of successfulness, thus showing that it is grounded

and based on a set of law formulas.

~ But it is easier to talk about the foundation of the rules than to say exactly what the foundation of rules consist in.

Page 72

TECHNOLOGICAL FORECAST

~ For technology, knowledge is chiefly a means to be applied to the achievement of certain practical ends, and its goal is successful action rather than pure knowledge.

~ Unlike scientific hypothesis, technological forecast states the required actions to bring about a certain change. Thus it is the actual application of the knowledge known and available that makes technology different from hypothesis.

Power Point Slides

"TECHNICS AND THE NATURE OF MAN"

By: Lewis Mumford

ASSUMPTIONS AND PREDICTIONS

The goal of man through technology is to envelope their surroundings in an automated world, where automatic operations play a key role in day to day life.

Our human limitations and technical possibilities have been altered by the course of new innovations in our society in the past century. Because of this insight being blurred, man and nature knows no limits in the development of modern convenience and will only know its limit at the point of its end.

Power Point Slides

TECHNOLOGY'S BEGINNINGS

~ Human beings are habitually tool-using animals by definition.

~ Human beings have reached no special circumstance by their ability to make and use tools. But gifted by the one primary tool,

which is the use of their mind, they have developed their animal like skills to adapt in better means than other animals on this planet.

~ Society thus transformed by our capacity and desire for well being we created culture, not only within our habitat, but one that would give us a sense of purpose more than living itself. We called this work.

~ Society has yet to realize or accept its present level of biological ecological, and psychosocial potentials as being at its most and so we strive for more and to no end till every resource will be used up

Discussion

Do you feel that society has reached its max potential of technological development? If yes, why and if no, then when will society (mainly human beings) be satisfied?

Are the rules of our technological world a means of limits?

Should the knowledge that we associate with technology be considered a portion of our all knowing knowledge and if so why is it all knowing?

Philosophy and Technology

Class 5.

Assignments:

1. **Read *Philosophy and Technology.* There are three essays.**
   - ***"Technology and Politics"***
   - ***"Domestic Theory: Ontology and Technology"***
   - ***"Pursuit of Happiness and Lust for Power in Technological Society"***

   for next class.

Coming Attractions:

- **Groups should be meeting periodically to help each other study and to discuss group topics. Group topics are due soon.**
- **Study for Exam 1: Review session will be made available soon.**

CLASS 6

Philosophy and Technology

Philosophy and Technology

Class 6.

Objectives:

- **Review of Class 5**
- ***Philosophy and Technology***
- ***"Technology and Politics"***
- **Direct and Indirect influences of Technology on Politics**
- **Influences on Foreign Policy**
- **The Challenge**
- ***"Domestic Theory: Ontology and Technology"***
- **Western Ethics and Thinking**
- **Western Democratic Ontology**
- **Technology Scarcity and Democracy**
- ***"Pursuit of Happiness and Lust for Power in Technological Society"***
- **Technological Society**
- **Pursuit of Happiness**
- **Karl Marx**
- **Review for Exam 1**
- **Assignment for next class**
- **Coming Attractions**

REVIEW OF PREVIOUS MATERIAL

Priamry Points:

REVIEW

~ Technology

~ From practical applications of technology to theory

~ Knowledge

~ Metaphysics

~ Truth and action

~ Technological rule and forecast

~ Assumptions and predictions about technology

~ Technology's humble beginnings.

PHILOSOPHY AND TECHNOLOGY

Page 151

"TECHNOLOGY AND POLITICS"

By: Nathan Rotenstreich

Power Point Slides

DIRECT AND INDIRECT INFLUENCES OF TECHNOLOGY ON POLITICS

~ Politics is the means by which man puts to use the forces inherent in his social organization. And in that understanding it is safe to say that politics also denotes a man's struggle for his share of social power.

~ Technology is the means in which man puts the knowledge and the laws of nature to use. Thus knowledge is the laws of nature and this is done in view of improving his lot or modifying it as fitting to him.

Page 151

~ indirect influences are such that in the creation of an advanced means of a tool, or technology, which is the application of knowledge then we see the society understanding this need and evolving, where by the person with the ability to reproduce this affect is here by granted power and wealth and so is politicaly inclined.

~ Such is the situation during the industrial revolution and especially with the invention of interchangable parts.

~ The ability for items to be interchangable allowed for a lack of customization, which meant faster means of production.

~ Politics being a human affair is part and critical to human existence.

~ The very relation between human existence and technology is rooted in a fundamental aspect of human reality.

~ It is politics goal to free man by making society autarchic over the means to its subsistence, and to improve the worker's actual human status.

~ If we view politics as the management of technology on society then the influence of technological achievements on politics is a process of management.

~ One must account for the resources available and the issue of scarcity of technology.

Page 158

INFLUENCES ON FOREIGN POLICY

Foreign policy gives the strongest push for the development of technology today.

~ At the height of wars human beings have made some of the most improvements in technology, in areas of medicine, warfare, and etc..

~ The point of foreign policy in politics is that man wants to preserve the power and authority of societies involved.

Power Point Slides

THE CHALLENGE

~ Technological achievements are human achievements and are in actuality hidden capacities of man's ability to listen, decode, and imitate the course of nature, using it to the most affective means as possible and testing out new limits for all human beings alike and within spheres of knowledge.

Page 161

"DOMESTIC THEORY: ONTOLOGY AND TECHNOLOGY"

By: C.B. Macpherson

WESTERN ETHICS AND THINKING

Western Democratic theory is based on the free market society concept where there are limitations and laws provided to protect one sphere from another but these are not the governing body of the sphere themselves as it would be in a communist type of a society

~ Within this type of s society we understand that human beings within their own sphere as an infinte consumber of goods and services.

~ Since technology is explained as the use of knowledge in providing goods and services by the available economic resources, then we can conclude that societies consumption and human beings are all part of a chain within technology.

WESTERN DEMOCRATIC ONTOLOGY

~ Equal rights of every individual to make the most of themselves.

~ Therefore man is not only the infinate consumer, but also an exerter and enjoyer of his own powers.

~ The powers are the level of knowledge and enjoyment with in their surroundings because life was to be lived, not to be devoted to acquiring utilities.

TECHNOLOGY SCARCITY AND DEMOCRACY

~ More and more the role of man as the infinite consumer is disappeariing and being replaced with a realization that they are enjoyers and exerters and evelopers of their individual human capacities.

Page 171

"PURSUIT OF HAPPINESS AND LUST FOR POWER IN TECHNOLOGICAL SOCIETY."

Power Point Slides

By: Yves R. Simon

TECHNOLOGICAL SOCIETY

~ Technique is a rational discipline designed to assure the mastery of man over physical nature through the application of scientifically determined laws.

~ Moral good and evil reside in the use of things

~ The use of things can be divided up into five catagories.

- ~ External things
- ~ The body and its organs
- ~ Cognitive powers.
- ~ the will
- ~ the sense appetite

~ In many cases there is no definite relation between the physical state of a thing and the moral quality of its use.

PURSUIT OF HAPPINESS

~ The pursuit of happiness is a greater purpose then the lust for power. To society the happiness can be achieved, but the lust for power is not rewarding after its initial condition when the need for power is subdued.

~ The lust for power dies away as asoon as power is no longer needed for wealth. Thus power is society's search for wealth but when there is no longer the desire or lust for wealth it is no more.

Power Point Slides

KARL MARX

~ Father of Eastern economics and believes firmly that if a nation or a group of people can be unified under a control where the knowledge is shared, and no human role of greed, jealousy or the desire to compete exists then a society of complete tranquility would exist with its capabilities to produce at a consistent level of production as long as the economic resources are available at its current state.

REVIEW FOR EXAM 1

All material taught or assigned from class 1 through class 6 will be on the exam.

Refer back to your notes and go over the objectives of each class in your handouts.

Philosophy and Technology

Class 6.

Assignments:

1. **Study for Exam 1.**

2. **Group Topics are due prior to the start of the exam. Submit a written proposal with your ideas and plan of action.**

Coming Attractions:

- **Read *Technology and the Politics of Knowledge.* There are two essays.**
  - ~ ***"Citizen Virtues in a Technical Order"***
  - ~ ***"The Moral Significance of Material Culture"***

CLASS 7

Philosophy and Technology

Philosophy and Technology (Exam 1)

Class 7.

- **50 Questions (total)**
- **25 Multiple (guess) Choice.**
- **25 (50/50) True/False Questions.**
- **You may use any book, note, and paper you require as long as it has nothing to do with this class.**

Philosophy and Technology

Class 7.

Assignments:

1. **Read *Technology and the Politics of Knowledge.* There are two essays.**
   - ~ ***"Citizen Virtues in a Technical Order"***
   - ~ ***"The Moral Significance of Material Culture"***

   for next class

Coming Attractions:

- **Read *Technology and the Politics of Knowledge.* There are three essays.**
  - ~ ***"Sade, The Mechanization of the Libertine Body, and the Crisis of Reason"***
  - ~ ***"The Archimedean Point and Eccentricity"***
  - ~ ***"Gilbert Simondon's Plea for a Philosophy of Technology"***

CLASS 8

Philosophy and Technology

Philosophy and Technology

Class 8.

Objectives:

- **Hand Back Exam 1**
- **Review Exam 1**
- **Review Class 6.**
- ***Technology and the Politics of Knowledge***
- ***"Citizen Virtues in a Technical Order"***
- **Ancient and Modern Views of Technology and Citizen**
- **Technology and Quality of Contemporary Citizenship**
- **Redefining Citizenship**
- ***"The Moral Significance of Material Culture"***
- **Theory and Practice of Technology**
- **Assignments for next class**
- **Coming Attractions**

REVIEW OF PREVIOUS MATERIAL

Priamry Points:

REVIEW

~ Direct influences on politics

~ Indirect influences on politics

~ The challenge of maintaining an equillibrium in flux

~ Ontology and Technology

~ Western Ethics

~ Western Democratic Ontology

~ Technology Scarcity

~ Pursuit of happiness in a technological society

~ Karl Marx

Discussion

What do you believe is meant by the phrase technological society? What do you think is the definition of technology and is it social or functional in nature? Support your views.

TECHNOLOGY AND THE POLITICS OF KNOWLEDGE

"CITIZEN VIRTUES IN A TECHNICAL ORDER"

Power Point Slides

ANCIENT AND MODERN TECHNOLOGY AND CITIZEN

~ Plato

~ Socrates

~ Aristotle

Page 67

~ The belief of technical affairs constitute an inferior realm of objects, knowledge, and practice, on that threatens to infect all who aspire to higher things.

~ With the redefined means of social and political arena concepts of power, authority, order, liberty, and equality are forums within the modern analysis of technology.

Page 70

~ Machiavelli, More, Hobbes, Locke, Montesquie, Bentham, and

Marx are considered to be the modern philosophers who created a new understanding of politics, natural sciences, and thus a new definition of technology.

~ Since technology evolves with the time because society and culture evolves and they are dependent on eachother through their metaphysical and ontological methods, it is not far fetched to realize that technology is ever changing as we human society seeks new knowledge of truth and application.

Power Point Slides

TECHNOLOGY AND QUALITY OF CONTEMPORARY CITIZENSHIP

~ The lack of participation in politics by an individual is not the fault of technology alone.

~ It is due to the lack of knowledge and the lack of citizen awareness in the area, and especially in this day and age due to the demand for productivity and and profit the individual are but controlled means in obtaining this goal and are in essence controlled in their behavior through a lack of time. Thus we accept our present state because it is harder to change our technological policy when bound in such ways by society.

~ We acept the proposals of policy makers and those who are in the field of expertise or in the job arena of technological -policy without our own individual input on society.

Discussion

What do they mean by technological-policy?

Power Point Slides

REDEFINING CITIZENSHIP

~ The ideals of ancient and modern technological policy and forms of political philosophy has produced a gap in between the two leaving people to be unsure of which to accept. On one hand the modern is what we live by and understand, but without the bases of the ancient or old this would not even exist.

~ This is so because modern politics does not provide appropriate roles and institutions in which the goal of defining the common good in technology policy is a legitimate project

Power Point Slides

"THE MORAL SIGNIFICANCE OF MATERIAL CULTURE"

THEORY AND PRACTICE OF TECHNOLOGY

PRACTICE

Page 85

~ Philosophy's origin's can be dated back to the findings of Plato when it was the study of material things and reality.

~ To philosophize was to rise aboe the tangible phenomena to the intlligible ideas.

~ Plato said "To know the good is to do the good"

TECHNOLGOY

~ Theory can inform practice, but practice is richer than theory and above all self-sustaining. Practice can survive without theory while theory arises from a practice and perishes without nourishment of practice. Therefore technology is the application of knowledge in practice and the study of this is Philosophy.

Discussion

How can theory be less important than practice? Give examples.

Philosophy and Technology

Class 8.

Assignments:

1. **Read *Technology and the Politics of Knowledge.* There are three essays.**
   - ~ ***"Sade, The Mechanization of the Libertine Body, and the Crisis of Reason"***
   - ~ ***"The Archimedean Point and Eccentricity"***
   - ~ ***"Gilbert Simondon's Plea for a Philosophy of Technology"***

2. **Write a 500 word essay on your view of what you presume to be the Moral Significance of Material Culture, and why. Support your answers with material already studied in the course.**

Coming Attractions:

- **Read *Philosophy and Technology*. There are three essays.**
  - ~ ***"Man and Machine"***
  - ~ ***"Christianity and the Machine Age"***
  - ~ ***"Technology and Man: A Christian View"***

- **Work on an Abstract for your Group Project.**

CLASS 9

Philosophy and Technology

Philosophy and Technology

Class 9.

Objectives:

- **Collect Assignment 3**
- **Review Class 8.**
- ***Technology and The Politics of Knowledge***
- ***"Sade, the Mechanization of the Libertine Body, and thje Crisis of Reason."***
- **Libertine Arithmetic**
- **The Factory of Pleasures**
- **Crisis of Reason**
- ***"The Archimedean Point and Eccentricity***
- **Alienation from the World**
- **History of Physics**
- **Rise of Cartesian Doubt**
- **The Process and Evaluation**
- **Eccentricity**
- **Technological and Scientific Culture**
- ***"Gilbert Simondon's Plea for a Philosophy of Technology"***
- **Use and Technology**
- **The Mode of Existence of Technical Objects**
- **The Evolution of Technical Objects**
- **Nature's Virtualities and their Actualization**
- **Assignments for next class**
- **Coming Attractions**

REVIEW OF PREVIOUS MATERIAL

Priamry Points:

REVIEW

~ Virtues in a technical order

~ views on technology

~ Technology and quality of citizenship

~ citizenship

~ Moral significance of Material culture

~ Theory and Practice of Technology

TECHNOLOGY AND THE POLITICS OF KNOWLEDGE

Power Point Slides

"SADE, THE MECHANIZATION OF THE LIBETINE BODY AND THE CRISIS OF REASON"

Page 213

LIBERTINE ARITHMETIC

~ History of science and technology has been and largely continues to be, based on the notion of all conquering reason.

~ This method is questioned not for its inaccuracy but for its limitations.

~ Do not look at specific privelages but those which interact with others.

~ The ides is to understand the basic ogans of thoery and technology as being instruments according to the theses.

Page 225

THE FACTORY OF PLEASURES

~ Capital formation

~ The acquisition of raw materials

~ Workforce (labor)

~ Training Personnel

~ Market or the proletariat of the libertine enterprise, the mass of vitims or people who will be associated with the item or production

Page 228

CRISIS OF REASON

~ There is a link between the ceratin model of body and the development of technology and industry.

~ It is paradoxical to know that in the libertine body of programmed, dissected, exposed without secrets, then it is handed over to be examined indifferently of its previous method and then classified.

~ In fact because of the following reason is considered to be thought os as substance, confronted with another substance which is considered to be heterogeneous.

Power Point Slides

"THE ARCHIMEDEAN POINT AND ECCENTRICITY"

ALIENATION FROM THE WORLD

~ The study of life of the mind.

~ If the mind is taken in different perspective, where it is separate from the world because of the application of modernity within our lives.

~ Hannah Arendt is not talking about the physical world but the world of the mind and she seeks to separate human beings from and protect them from nature.

Discussion

Why would anyone want to be protected from nature?

Page 239

HISTORY OF PHYSICS

~ The exploration of the whole world

~ Individual exploration and the accumulation of social wealth.

~ The development of new sciences that considers the nature of earth in relation to the universe.

Discussion

What is Werner Heisenberg's view of history of physics compared to that of Hannah Arendt'S?

Page 241

RISE OF CARTESIAN DOUBT

~ Compared to that of the ancient philosophy in modern philosophy doubt occupies the same central position as Greek thaumazein once did.

~ The reality of thw world as well as of human life - was doubted

~ Can senses and reason be trusted?

Power Point Slides

THE PROCESS AND EVALUATION

~ In light of modern meaning in all spheres the older and more classical spheres have gotten a new meaning and hence there is not the extinction of one thought but the collective means of the whole sphere.

~ The history of technique itself is that it was once a continuation of old craftsman, but now is the new and innovativeness founded by the application of knowledge.

ECCENTRICITY

~ In the eccentric position man transcends himself and this enables him to look at himself an his behavior.

~ You can not stop with just looking, because human beings can act out these positions.

~ Philosophy as an expression of reflection is a personification of alienation.

Discussion

How does philosophy alienate?

TECHNOLOGICAL AND SCIENTIFIC CULTURE

~ Science and technology only represent a new approach in parallel to the everyday approach of thinking and theory.

~ Science and technology creating new artifacts have decisively modeled a new face on the world and this new face gives shape to

human thinking, feeling and action.

Power Point Slides

"GILBERT SIMONDON'S PLEA FOR A PHILOSOPHY OF TECHNOLOGY"

Page 257

USE AND TECHNOLOGY

~ The proper way to approach technology is in the form of use and of instrumental rationality, thus the means and the end relationship.

~ The examples of few as identified can be misleading of technology.

~ Called functionalism, the realted issues of current doctirne in philosophy of the mind and cognitive science, and is used in the issues of realism in epistemology.

page 258

THE MODE OF EXISTENCE OF TECHNICAL OBJECTS

~ Through concretization the abstract form of an invention becomes a technical object progressively embodied in a definite structure of materials and physical processes.

~ The technical object of technology and science being it as it may that the new is relfective of the past and the past is reapplied to better the new, thus it is an on going cycle.

Page 261

THE EVOLUTION OF TECHNICAL OBJECTS

~ This notion of technical progress render ths evolution of technical objects independent of social demand and the pressure it exerts upon the distribution and modification of such objects.

~ Thus it is a continuous cycle separate from the social demand but not separate from society as a whole.

Discussion

How does society view technology and does it believe in the reapplication of the old to the new and vice verse?

Philosophy and Technology

Class 9.

Assignments:

1. **Read *Philosophy and Technology*. There are three essays.**
   - ~ ***"Man and Machine"***
   - ~ ***"Christianity and the Machine Age"***
   - ~ ***"Technology and Man: A Christian View"***

   for next class.

Coming Attractions:

- **Read *Philosophy and Technology, "Technology in Its Proper Sphere"***

CLASS 10

Philosophy and Technology

Philosophy and Technology

Class 10.

Objectives:

- **Review Class 9.**
- ***Philosophy and Technology***
- ***"Man and Machine"***
- **Technique**
- **Spirit and Spiritual Life**
- ***"Christianity and The Machine Age"***
- **What is Christianity?**
- **Is Christianity True?**
- **What is Man?**
- **Capitalist Industrialism**
- **Machines and Machine-Made Things**
- ***"Technology and Man: A Christian Vision"***
- **Christian View of Technology**
- **Assignments for next class**
- **Coming Attractions**

REVIEW OF PREVIOUS MATERIAL

Priamry Points:

REVIEW

~ Libertine Arithmetic
~ Pleasures
~ Crisis of reason
~ Eccentricity
~ Alienation from the world
~ Physics
~ Cartesian Doubt
~ Process and Evaluation
~ Technological and Scientific Culture
~ Use and Technology
~ The mode of Existence of technical objects
~ Virtualities and Actualizations

PHILOSOPHY AND TECHNOLOGY

Page 203

"MAN AND MACHINE"

By: Nicholas Berdyaev

TECHNIQUE

~ The question of technique has now become that of the destiney of man and of his culture in general.

Discussion

Why is technique the destiney of man?

Technique is not only military, industrial, economical, but one of thought, versification, painting, dancing, law and even spiritual

~ We are confronted with a paradox, that without technique culture is impossible and yet the advent of a technical age brings about the destruction of culture.

Discussion

Why does the technical age bring about destruction of culture?

SPIRIT AND SPIRITUAL LIFE

The symbolism lacks in technique because it builds up the prospect of heroism, possible deeds, which we can read in the feats of heroin and heroes depicted in art, like Don Quixote, Hamlet, and Leonardo's Mona Lisa for an example.

The Spirit and the Spiritual life is brought about by the revelation that we must think in a relaxed and confirmed manner to use the technique in which we can use it to our understanding of our surroundings.

Power Point Slides

"CHRISTIANITY AND THE MACHINE AGE"

By: Eric Gill

CHRISTIANITY

A man's fate being a tragic one is not the most appealing thought, and thus Christianity faces a problem. The good shall go to heaven and the bad will go to hell. The chances are 50/50 and yet human beings are not satisfied. We look upon this as being unfavorable and so Christianity has to answer new questions such as what about the relations we have within technology, society, and knowledge dealing with man and machince, man and organisms, or even man and the cosmos?

MAN

~ What is christianity?

~ Is christianity true?

~ what is man?

~ Man is a being of scientific knowledge, as implied by the definition

scientific knowledge, in that at best scientiic knowledge is no more than the results, more or less accurately recorded, of more or less inaccurate observations.

MACHINES

~ What is art?

~ What is Capitalist Industrialism?

~ Machines and Machine made things can be good if, and only if, it satisfies in a reasonably exact manner a physical purpose.

"TECHNOLOGY AND MAN: A CHRISTIAN VISION"

By: W. Norris Clarke

CHRISTIAN VIEW OF TECHNOLOGY

God and his plan for man and the universe down to technology as an element in this plan.

~ Since technology is the partial activity of man it can only be evalutated when set in the context of total reality and good of man.

Discussion

Is this correct? Can technology be only evaluated in the good of man, why not the bad?

Philosophy and Technology

Class 10.

Assignments:

1. **Read *Philosophy and Technology, "Technology in Its Proper Sphere"* for next class.**

2. **Write a 500 word paper on how Man and Machine can survive together in this day and age. Support your work from the course material.**

3. **Submit an Abstract from your group project write up.**

Coming Attractions:

- **Read *Philosophy and Technology, "Practical Uses of Theory"***

CLASS 11

Philosophy and Technology

Philosophy and Technology

Class 11.

Objectives:

- **Collect Assignment 4**
- **Review Class 10.**
- ***Philosophy and Technology***
- ***"Technology in Its Proper Sphere"***
- **Components of Technical Creation**
- **The End or Purpose**
- **The Means of Invention**
- **Isolated, Creative Conception**
- **Within the Laws of Nature**
- **The Fourth Realm**
- **Technology as a Foundation of Philosophy**
- **Assignments for next class**
- **Coming Attractions**

REVIEW OF PREVIOUS MATERIAL

Priamry Points:

REVIEW

~ Man and machine

~ Capitalist industrialism

~ Machines and manchine-made things

~ religion's view on technology.

PHILOSOPHY AND TECHNOLOGY

"TECHNOLOGY IN ITS PROPER SPHERE"

By: Friedrich Dessauer

COMPONENTS OF TECHNICAL CREATION

~ Critical Metaphysics. States that it is the nature of man that we must question in order to understand the technical creation of an object.

~ The external characteristics of a technical object are:

- ~ Serving a purpose
- ~ Being in accord with the laws of nature
- ~ Corresponding to the inner workings of technical creation.

THE END OR PURPOSE

~ Comes from the human sphere, the individual or society

~ Ethical achievement of an invention in the use of it as a new goal setting device with the capabilities to answer specific problems

page 320

THE MEANS OF INVENTION

The only way technical works can successfully work is if they work in harmony with the laws of nature. However laws of nature do not want to change and so technical works have to fight every step

of the way to free itself from the bonds of natural law

~ all solutions to technical works follow these steps, the means are characterized by the conceptualization of natural law. And the complete affirmation of all the laws of nature by steadly remaining within the framework of the laws, allows a technical work to exist.

ISOLATED, CREATIVE CONCEPTION

~ Between means and end lies an inner working out and fulfillment

~ The need for the participation of the subconcious in inventing

~ The need for the encounter with an external power allowing the inventor to see their immagination come to life.

WITHIN THE LAWS OF NATURE

~ Each object in its own invention and creation. The conception and ideology behind them are equaly as important. The fulfillment of the invention enters the world of experience and with it its own quality and power.

The human sphere = the laws of nature

THE FOURTH REALM

~ The transfer of pre-established, definite forms from a realm of availability into our living realm of sense perception is true technical creation.

~ The numerous outcomes an inventor has stored within their mind but does not uses and apprehends within themselves can be a realm, a dimension if you will that they have to store the abundunt solutions in one place.

~ Fourth realm is an abundance of power and when human beings transfer forms from the fourth realm they open the gates to power and knowledge, the technological applications to natural law.

Page 332

TECHNOLOGY AS A FOUNDATION OF PHILOSOPHY

~ Sphere is the knowledge that is associated with human beings in all different forms and catagories and studies. If this is true, then in our application to the definition of the Philosophy. Where by philosophy is the search for a world view, the universal truth, and identification of articulated totality of knowledge, then we can assume that the spheres in some way must have a path to philosophy.

~ Such spheres as natural science point to the center of world view and we can not accept the conclusion that natural laws are the only form of means to determine the sphere's acceptance.

Discussion

Why is natural law not the only means of acceptance of spheres?

Philosophy and Technology

Class 11.

Assignments:

1. **Read *Philosophy and Technology, "Practical Uses of Theory" for next class.***

Coming Attractions:

- **Work on your group projects. Oral group project presentation is class 13.**

CLASS 12

Philosophy and Technology

Philosophy and Technology

Class 12.

Objectives:

- **Review Class 11.**
- ***Philosophy and Technology***
- ***"Practical Uses of Theory"***
- **Aim and Meaning of Knowledge**
- **Use and Activity**
- **Necessities and Miseries**
- **Means towards an End**
- **Theory Formations**
- **Truth or Use**
- **Practice and Theory**
- **Theory called Philosophy**
- **Assignments for next class**
- **Coming Attractions**

REVIEW OF PREVIOUS MATERIAL

Priamry Points:

REVIEW

~ Components of technical creation

~ The end or purpose of technolgy

~ the means of invention

~ Isolated, creative conception

~ Laws of nature

~ Technology is the foundation of Philosophy

PHILOSOPHY AND TECHNOLOGY

Power Point Slides

"PRACTICAL USES OF THEORY"

By: Hans Jonas

AIM AND MEANING OF KNOWLEDGE

~ Thomas Aquinas

~ Francis Bacon

~ They talk about two different kinds of knowledge.

Discussion

What are the different types of knowledge?

Work and theory should be one again so that theory can point in the correct direction of the work. Therefore that our knowledge is complete with a unified understanding.

USE AND ACTIVITY

Page 336

~ The end of all use is the same as the end of all activity

~ Preservation of life

~ Betterment of life

~ Promotion of the good life.

Power Point Slides

NECESSITIES AND MISERIES

~ Misery means a denial of good life

~ Beyond that minimum necessary for survival is the goo life or human happiness.

~ Knowledge negates misery and brings about happiness.

~ theory is knowledge and thus is the intellectual communion between objects that it modify's a subject's own condition.

THEORY

Classical theory: transcendence, implies objects higher than man

Modern theory: objects lower thatn man.

Page 339

MEANS TOWARDS AN END

~ The means has a prior existence before its application and it would stay thus if untouched by the application.

~ To be neutral is not possible in the case of use and so in use there are two catagories. One of essential use and the other is accidental use.

ie: A tool owes its very being to the purpose beyond itself for which it was designed.

Power Point Slides

THEORY FORMATIONS

~ Residues which are symbolic representations.

~ To lead beyond the actual symbolic means to produce a form of greater means and so a reduction in fundamental discovery and fundamental anticipation.

Discussion

What are some examples of such a case?

TRUTH OR USE

The real human end is left open because of the preponderance of

conspicuous practical element and so we can not tell whether it is of use or truth.

Power Point Slides

PRACTICE AND THEORY

Happiness has already been prejudged by science and is not left to be open to be experienced or the truth found in such manner of its applications.

THEORY CALLED PHILOSOPHY

The course of knowledge must be not be stopped, for if not for its gains, then for the cost that we would have to endure cause of the lack of knowledge and theory, for scientific theory is still the bases of knowledge and thus is the questions within philosophy.

Discussion

How is philosophy and technology related?

Philosophy and Technology

Class 12.

Assignments:

1. **Prepare group project write-ups to be submitted next class. Work on group project presentations.**

Coming Attractions:

- **Start reviewing for Exam 2**

CLASS 13

Philosophy and Technology

Philosophy and Technology

Class 13.

Objectives:

- **In Class Oral Group Presentations**
- **Collect Presentation Write Ups**
- **Review for Exam 2**
- **Assignments for next class**
- **Coming Attractions**

REVIEW OF PREVIOUS MATERIAL

Priamry Points: **REVIEW**

- ~ Aim and meaning of knowledge
- ~ Use and activities
- ~ Necessities and Miseries
- ~ Means towards an End
- ~ Thery Formation
- ~ Truth or the use of knowledge and technology
- ~ Practice versus theory of technology
- ~ Theory called Philosophy

IN CLASS PRESENTATIONS.

- ~ Groups will present in class
- ~ All presentations should be about ten minutes long
- ~ Be prepared to hand in your group project write up.

Philosophy and Technology

Class 13.

Assignments:

1. **Study and review for Exam 2**

CLASS 14

Philosophy and Technology

Philosophy and Technology (Exam 2)

Class 14.

- **75 Questions (total)**
- **50 Multiple (guess) Choice.**
- **25 (50/50) True/False Questions.**
- **Pick 1 of 3 essay topics given.**
- **All work is due today.**
- **Good Luck!**

Class 14.

Assignments:

1. **All assignments will be ready for you to pick up at my office at the beginning of next term.**

Coming Attractions:

- **Have a great break.**

Appendix C:

Philosophy and Technology:

Power Point presentation goes hand in hand with the handouts for the class. The power point slides are on disc at the back of this folder and are part of this project. They may be view in Microsoft Power Point program.