ABSTRACT
The increasing dependence on computers for critical infrastructures essential for the functioning of a society and its economy has given rise to a host of ethical, social, and legal issues. The ability to make sound ethical decisions is thus an important part of Computing and Software engineer’s professional skills. This paper argues for the significance of teaching professional, social and ethical issues in Software Engineering in a Swedish context and practice. Examples are presented of teaching materials and experiences from the course Professional Ethics in Science and Engineering at Mälardalen University, and the PIFF project for support of Software Engineering Master Theses running at Mälardalen University, Blekinge Institute of Technology and Lund University.

Keywords
Ethical issues, Professional issues, Software Engineering, Master thesis

1. INTRODUCTION AND PROFESSIONAL PRACTICE
As has been noted by for example [15] engineering is a multi-faceted, real-world endeavor with ethical dimensions:

   Engineering is an inherently risky activity. In order to underscore this fact and help in exploring its ethical implications, we suggest that engineering should be viewed as an experimental process. It is not, of course, an experiment conducted solely in a laboratory under controlled conditions. Rather, it is an experiment on a social scale involving human subjects.

The intense media coverage of disasters such as the explosion of Ariane V and the radiation overdoses in Therac-25 computerized linear accelerator for cancer treatment has increased the interest in engineering ethics [30]. Major technical disasters are extremely costly but fortunately happen rarely. The judgment made by an engineer about what risks are acceptable is to a high degree an ethical one.

Professional activities during the design, development, analysis, specification, certification, maintenance and evaluation of computer systems have a significant real-world impact. To ensure that those efforts will be for the general good, professionals must commit to making Computing in general and Software Engineering in particular beneficial and respected professions, promoting an ethical approach to their professional practice.


The Accreditation Board for Engineering and Technology (ABET) Engineering Criteria [1] affirm that ‘Engineering programs must demonstrate that their graduates have an understanding of professional and ethical responsibility.’ ABET strongly encourages engineering schools to provide students with tools to make ethically prudent decisions: ‘Engineering programs must demonstrate that their graduates have the broad education necessary to understand the impact of engineering solutions in a global and societal context.’

Curriculum Guidelines for Undergraduate Degree Programs in Software Engineering [22] indicate the importance of ‘understanding and appreciation of professional issues related to ethics and professional conduct, economics, and the societal needs.’ Further professionalism and ethics are recommended as a part of a subject ‘Professional Software Engineering Practice’ in which students will gain ability to make appropriate decisions based on ethical codes and ethical principles, have concerns for safety and security requirements, human and personal rights, be aware of and follow the laws and standards, and be able to understand the effects of engineering decisions on the society, environment and individuals.

It is thus evident that professionalism and ethical concerns are important parts of any successful Computing and Software Engineering curriculum. However, they are still often overlooked and there is a lack of concrete advice and experience reported on how to incorporate them in educational practice. This paper address these shortcomings based on experiences from Swedish Software Engineering education.
2. EDUCATION IN PROFESSIONALISM & ETHICS

In spite of the clear policy statements and guidelines, Professionalism and Ethics are seldom included in Software Engineering undergraduate and graduate curricula. In Sweden, several universities offer courses in Professional Ethics for students in Computing disciplines. Known examples are The Royal Institute of Technology with courses in Engineering Ethics and Mälardalen University with a course in Professional Ethics in Science and Engineering, since 2003. Starting in 2005, the Swedish Linköping University, the Norwegian University of Science and Technology NTNU, and Utrecht University Netherlands jointly offer an Erasmus Mundus Master’s programme in Applied Ethics (MAE), which among others offers courses in Computing Ethics.

During the educational and training session at ICSE 2005 there was an interesting discussion whether education and training in Ethics in Software Engineering curricula is necessary, or whether this without any doubt important issue can be learned in some other ways; in secondary schools, at home, or via public information.

We argue that training and education in professionalism and Ethics should be a compulsory part of Software Engineering curricula as many important engineering decisions are based on both engineering and ethical principles. Common ethical concerns specific to Software Engineering and Computer Science include [20]:

- Social context of Computing
- Methods and tools of analysis of ethical argument
- Professional and ethical responsibilities
- Risks and liabilities of safety-critical systems
- Intellectual property
- Privacy and civil liberties
- Social implications of the Internet
- Computer crime
- Philosophical foundations of Ethics

Following the above we have in 2003 developed a course ‘Professional Ethics in Science’ as a part of the Computer Science and Software Engineering Curriculum at Mälardalen University. A short overview of this course will be given along with our experiences of its impact on students and its relevance for the industry. We will complement this experience with information on PIFF, an ongoing educational development project to develop web-based support for master theses in Software Engineering, and how ethical concerns are being addressed there.

3. TYPICAL ISSUES OF COMPUTER AND SOFTWARE ENGINEERING ETHICS

According to Moor, Computer Ethics should be defined as the analysis of the nature and social impact of computer technology and the formulation and justification of policies for the ethical use of such technology [33]. The social importance of the computer as a revolutionary machine together with its specific features do give rise to new ethical problems and legitimize the introduction of the field of Computer Ethics. Following are unique features of computing technology:

- **Logical malleability.** Computers are logically malleable in that they can simulate any activity that can be characterized in terms of inputs, outputs, and connecting logical operations [33]. Computers are therefore used as tools for representation, modeling and simulation and they are a materialization of our conceptual knowledge of the world.

- **Speed and the simplicity of handling.** Large amounts of data are easily manipulated (as if they are greased [34]) which is connected with ethical problems of privacy and security. Related are also Copyright issues. Images, text (including program code), films and music can be easily copied and used without attribution to the author or out of context. This causes the ongoing discussion about intellectual property.

- **Storage of huge amounts of data.** The ease with which data are saved makes the use of surveillance, monitoring and spyware methods really easy from the technical point of view.

- **Uncertainty of identity.** Present day vague identities make possible stealing other person’s identity, forging of a message, or sending a message anonymously like ‘spam’ for example. There is an ongoing ethical debate about the pros and cons of anonymity.

- **Global character.** Computer communication does not stop at national borders. What is considered legal in one country might be forbidden in another. Software development projects often include developers from several nations, e.g. open-source software development and outsourcing trends in large engineering companies.

- **Openness and availability.** Computer networks make it easy for the user to come across information, even in cases of pornography, gambling, or sites with propaganda, superstition, or other disinformation which might be difficult to handle for certain groups of users. Cyberstalking is an example mentioned in Tavani [39].

- **Power mediation.** Computing is still a well-educated-younger-male-dominated field. This domination can be seen as an inequity. The related ethical questions are the power distribution, equal opportunities, equity, fairness, justice and digital divide.

Ethical problems arise most often when there are differences of judgment or expectations about what constitutes the true state of affairs or a proper course of action. The engineer may be faced with contrary opinions from within the firm, from the client, from other firms within the industry, or from government. An individual makes ethical decisions in his/her capacity as a member of various groups. In order to make ethical decisions, an engineer interacts in many directions and within many different contexts, each of which can show the actual situation in a different light; see Figure 1. For example, solving the problem on the relation individual/colleagues/management could lead to certain choices, which e.g. do not necessarily coincide with the views of his/her own family or friends, or the clients, authorities, societies or other industries.

When faced with ethical dilemmas, a professional must be able to make rational and well-justified decisions. Courses in
Ethics can support professionals by offering tools and methods helpful in such situations. The basic principles of Medical Ethics, Legal Ethics, and Computer Ethics are the same. However, new circumstances related to the computer do raise new questions about how these principles are to be understood and applied. The concept of policy vacuums designated thus by Moor [33] and further discussed in [26] and [39] denotes our lack of policies in completely new and unforeseen circumstances. A good example is lack of adequate policies in the world where critical infrastructures essentially depend on computers [36], which is a new phenomenon. Another example is virtual economy - trade with real money of objects in virtual worlds. Tavani [39] concludes his article on the uniqueness debate stating that the Computer Ethics issues are not only philosophically interesting and unique but are exceptionally and increasingly important and thus deserve our careful attention. This applies equally to Information and Software Engineering Ethics.

4. CODES OF ETHICS

Because of the fundamental impact computing has on our lives, it is necessary to integrate computing technology and human values in such a way that the technology protects and advances human values. How can we work to ensure that computing and software technology advances human values? One way to establish an integrated value system is based on acceptance of the code of ethics. Codes of Ethics express the consensus of the profession on ethical issues. At the same time they are a means of educating the general public about the ethical norms and values of the profession. An essential characteristic of a profession is therefore the need for its members to conform to its code of ethics.

Professional societies in science and engineering publish their ethical codes or guidelines. See references [2, 3, 19, 23, 24, 25, 37, 40] to ethical codes of societies of professional engineers and scientists. These codes differ in their content, but the topics and the general ethical standards they articulate are similar.

Having a code of ethics allows an engineer to argue not merely as an ordinary moral agent, but in the first place as a professional. Engineers (or doctors, or clergy, etc.) can say ‘As a professional, I cannot ethically put business concerns ahead of professional ethics.’ [8].

Harris, Pritchard, and Rabins [16] summarize Stephen Unger’s analysis of the possible functions of a code of ethics:

First, it can serve as a collective recognition by members of a profession of its responsibilities. Second, it can help create an environment in which ethical behavior is the norm. Third, it can serve as a guide or reminder in specific situations. Fourth, the process of developing and modifying a code of ethics can be valuable for a profession. Fifth, a code can serve as an educational tool, providing a focal point for discussion in classes and professional meetings. Finally, a code can indicate to others that the profession is seriously concerned with responsible, professional conduct.

Along with Codes of Ethics, case studies are necessary, since the two are strongly interdependent. Without guiding principles, case studies are difficult to evaluate and analyze; without concrete examples, codes of ethics are incomprehensible. The best way to use these codes is to apply them to a variety of situations and study the results, see [25].

5. WHY STUDY PROFESSIONAL ETHICS

To sum up, what is the point in studying Ethics for an engineer? One thing is sure: A Professional Ethics course is not about preaching virtue so that students will adopt a certain pre-established set of beliefs. Rather, it aims to increase the ability of students as future engineers and managers to first recognize and then responsibly confront moral issues raised by technological activity. The goal is to develop moral autonomy, i.e. the skill and habit of thinking rationally about ethical issues. For the role of computer ethics in the Computer Science Curriculum, see Bynum [7] and Moor [33]. In sum, we learn Ethics in order to:

- Deal with computing as a service to other human beings [15]
- Sensitize students to computer ethics issues
- Convey a sense of professional responsibility not covered in other courses
- Provide tools and methods for analyzing cases
- Present practice in applying the tools and methods to actual or realistic cases
- Develop in the student good judgment and helpful intuitions for ethical autonomy

The above topics are not typically addressed outside the Computing Curricula/Software Engineering education. As pointed out previously, a discussion of general ethical questions is definitely not enough to enable an engineer to identify the concrete ethical questions within the specific field of engineering. The study must be field-specific and based on concrete cases.
6. PROFESSIONAL ETHICS IN COURSES AT MDH

Following the lines of reasoning presented in this article, we have developed a course in Professional Ethics at Mälardalen University, intended primarily for Computer Science and Software Engineering students [32]. The course is a combined undergraduate and PhD level course. The difference between the levels was in the final paper which for doctoral students was a research paper and for undergraduates was a simple essay.

The emphasis of the course is on cultivating sensibility to ethical problems, increasing of moral autonomy, ethical pluralism and critical thinking, see Table 1.

The course was inspired in its structure (general introduction, specific topics, practical exercises and discussions) by Lawrence Hinman’s courses at the University of San Diego [29] and gives an insight into the ethical problems important for professionals in Engineering and Science. It forms a framework in which professional and ethical issues can be analyzed and discussed, and builds up an awareness of various views of ethical issues as well as the professional ethical responsibilities.

The topics include, among others, the social context of a profession and conflicts between loyalties to different principles (safety and economy, precautionary principle and environmental impact, integrity, privacy, ownership, etc.). Fundamental moral theories are presented as the introductory part of the course.

In a seminar form we discuss Codes of Ethics (IEEE/ACM Software Engineering Code of Ethics and Professional Practice, [3, 19, 23], Responsible Conduct of Research [40]), and examine a series of case studies, developing critical thinking and argumentation.

The course is delivered through a combination of lectures, guest lectures, classroom discussions with role play, seminars and essays. For more details on the Professional Ethics Course at Mälardalen University, see [32].

Our five years of experiences (2003 - 2008) with this course have been very positive. Students have participated actively in discussions, case studies and research on chosen topics. Even predominantly technically-minded students were able to assimilate and use philosophical concepts presented in the introductory theoretical part of the course. The examination forms for the course were the writing of a research paper on an ethical topic of interest and an oral presentation of a chosen topic (such as safety and security, intellectual property, environmental ethics, privacy etc.) followed by an in-class discussion led by the students responsible for the actual presentation. Course evaluation results are given at [32] and show that students experienced the course as useful and relevant for their future professional activities. Parts of the course and specific lectures have also been included in other courses and programmes at the university.

As a consequence of the increased interest in ethical issues, several Master Thesis works at the Department of Computer Science and Engineering have been dedicated to ethical problems such as privacy, surveillance and safety critical software; see [17, 4, 35]. Moreover, two of the industrial PhD students, inspired by the Professional Ethics course have included specific chapters on ethical aspects in their PhD [27] and Licentiate Theses [28]. They have related the technological issues such as product integration and component-based design to stakeholders’ attitudes and decisions based on ethical premises of the engineering in particular activities in the software development process.

Ethics course students published a number of articles in international journals [12, 11] and at conferences such as CEPE [10], CAP, SCAI and ETHICOMP [13, 9] which got interest of both philosophy and engineering communities for ethical issues related to Computing and Software Engineering.

Besides Professional Ethics, we have developed Computing and Philosophy Course (CAP), an international distance advanced level course in collaboration with distinguished lecturers from University of Illinois, Springfield, USA and several European universities. One of the important aspects addressed in CAP course is Ethics, [31]. Several of papers in Ethics from previous CAP course have been published on philosophy and on computing conferences.

7. PIFF PROJECT FOR SOFTWARE ENGINEERING MASTER THESIS SUPPORT

Within the framework of the educational development project PIFF [5] for support of Software Engineering diploma work, running at three Swedish universities one of the aspects that are included concern Software Engineering Ethics [32]. Swedish Master Thesis projects are typically capstone projects carried out by students individually or in groups of two at the end of their educational programs. The most common form is a six month project carried out either with a research group at the university or with an industrial company.

The PIFF project (PIFF is an acronym of the Swedish project title which can be translated to English as ‘Software Engineering Master Theses for Industry and Academic Success’) is a two-year educational development project supported by the ‘National Board for the Development of Higher Education’ (NSHU). It was started in late 2007 by four researchers and teachers involved in the master thesis projects at Mälardalen University, Blekinge Institute of Technology and Lund University. The main aim is to increase the value of the master thesis project for the students, but also for the other main stakeholders: companies in industry which are involved in or affected by the theses projects, and universities and research groups who help the students or judge the results. The concrete goal is to develop resources that can support the formulation, execution and quality grading of master thesis projects. These resources are typically guidelines, templates and process descriptions to be used in different stages of a master thesis project.

In the initial phases of the project we have studied how different stakeholders from academia and industry view the Master thesis [18]. The results were that the different stakeholders have very different views and thus need different types of support and information when starting up and during a thesis project. The paper also outlined a support framework to give this role-specific support. We have also investigated if current master thesis courses and support material help the students develop generic skills useful for their future professional activities [14]. Results showed that a majority of students thought it important for their future careers to develop generic skills, such as critical thinking which is reasoning based on value systems and ability of making proper judgment - typical of ethical discourse. However, very few of the surveyed students thought their university
8. ETHICS SUPPORT IN SOFTWARE ENGINEERING MASTER THESIS

We apply the integrative approach of Burkholder et al in the PIFF project, making ethical deliberation part of the Software Engineering Master Thesis work [6]. During the thesis work, a student will meet a number of professional ethical questions and especially in thesis work with empirical research such as surveys, case studies, field studies, metrics and experiments, ethical aspects will be important to recognize and deal with, from informed consent to confidentiality and privacy, see Singer and Vinson [38].

Our snippet for support of ethical concerns in the thesis project covers two major areas: student work ethics and ethics of the research itself. The student work ethics focus on the professional conduct of the student during the project and aims to prepare students for their professional career. This is considered very important by industrial thesis advisors and contact persons and they use it as one of the main criteria in judging whether a thesis student would also make a good future employee. For the student work ethics the PIFF snippet describes that the student will need to exhibit: character (such as integrity, dependability, responsibility etc.), punctuality (respecting schedules and deadlines etc.), attitude (realistic expectations etc.), social and teamwork skills (cooperativeness), communication (verbal and non-verbal skills), working and organizational skills (prioritization and stress management, flexibility), cooperation (leadership skills, criticism and conflict), and respect (cultural and other diversity, harassment issues etc). Supervisors are encouraged to include a discussion about these issues when starting up a thesis project and some aspects are covered by criteria in the thesis process rubric the supervisor uses to judge the quality of the work of the student. The 'Timeliness' criterion covers punctuality, while the 'Balance' criterion covers teamwork, organization and cooperation skills. Communication skills are partly covered by the presentation rubric. A selection of relevant quality criteria are shown in Table 2. We are also developing a video to

| Table 1: Professional Ethics Course Syllabus (L = Lecture, WS = Workshop) |
|-----------------------------|---------------------------------|---------------------------------|---------------------------------|
| L1  | Getting Started, Course Preliminaries, Identifying Moral Issues |
| L2  | Methods and tools of analysis of ethical argument, Philosophical Foundations of Ethics, Ethical Relativism, Absolutism and Pluralism |
| L3  | The Ethics of Conscience, Ethical Egoism, The Ethics of Duty, The Ethics of Respect |
| L4  | Utilitarianism, The Ethics of Rights, The Ethics of Justice |
| L5  | The Ethics of Character, Ethics and Gender |
| L6  | Safety, Security (Guest lecture) |
| L7  | Privacy and Civil Liberties, In-class activity: case studies |
| L8  | Environmental ethics, In-class activity: case studies |
| L9  | Social context of profession |
| WS1 | Professional and ethical responsibilities: codes of ethics |
| L10 | Risks in Engineering and Science, Risks and liabilities of safety-critical systems, Precautionary Principle |
| L11 | Industrial experiences (Guest lecture) |
| WS2 | Intellectual property, Internet, Computer Crime - Case studies |
| WS3 | Oral presentations of students projects/papers |
| WS4 | Course wrap-up and discussion |

supported the development of generic skills in a good way. Even though the list of generic skills that the study was based on was taken from official lists developed within the Bologna program of the European Union, they did not explicitly consider ethical issues.

Based on the results from these earlier phases the PIFF project is now developing two main sets of resources for Software Engineering Master theses support. One is a set of rubrics to support the judgment of quality of different phases of a Master thesis project. The rubrics cover the proposal for a thesis, the process of conducting the thesis project, the thesis report itself, as well as the oral presentation of the work. Each of these four rubrics state quality criteria and different levels of quality for each criterion.

The other set of resources developed within PIFF is a web-based support tool for knowledge exchange between academia, industry and research during diploma work, supporting both a student and an advisor in the different phases (planning, execution and grading/assessment). The portal contains 'snippets' relating to different parts of a Master thesis project. A snippet has general information and guidelines, a checklist, links to further information, and sometimes templates to support the student in this aspect of her thesis work. Some of the snippets will also have short videos where a teacher or student goes through the main aspects of the snippet for the student. These videos are important since not all Master thesis courses have specific lecture elements or room in the schedule for covering all aspects in the class; the videos are an inexpensive and simple way to give support to all students and other thesis stakeholders without incurring additional costs.

The results from the early phases of PIFF showed that there was little to no awareness of or support for ethical issues within the Master thesis projects. This is surprising since the importance of ethical concerns can be expected to be more evident in practical projects closer to reality. As argued in [6], it is necessary to integrate the study of Ethics into professional Software Engineering education using a case-based approach (Burkholder), practical methods for ethical reasoning (Covey) and by presenting integration models (Götterbarn). This should be all the more natural within the context of a practical and/or applied diploma project. We have thus developed specific support for ethical concerns and we are adding an ethical concerns criteria to our examination rubrics. In the following we describe these in more detail.
A well-balanced ethical issues analysis and discussion among stakeholders around professional conduct and ethical issues and help to develop an ability of sound ethical judgment by a student. We are currently evaluating the effectiveness of our approach including the views of different stakeholders.

9. CONCLUSIONS

The aim of including ethics in science and engineering curricula is to increase the ability of future professionals to recognize and address ethical problems, to accept different ethical perspectives and allow for ethical pluralism. Ethics courses develop the skill and habit of thinking rationally about ethical issues and in that way prepare students for the challenges of their future profession.

Experiences from the Professional Ethics in Science and Engineering and related courses at Mälardalen University are encouraging. An overall impression is that the course participants discovered a very important factor that influences their professional judgments and decision making, the engineering ethical aspect. With all the positive experiences we have, we are definitely intended to continue giving the courses in the future, convinced in their indispensability for educating future engineering professionals in general, and especially Software Engineering professionals, who are among those engineers who are going to meet the largest variety of ethical issues of all Computing professionals.

One of the steps of establishing the culture of ethical thinking is through Master Thesis works done by students in Computing on specific Engineering Ethics issues as well.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Superior</th>
<th>Good</th>
<th>Fair</th>
<th>Minimal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timeliness (Project)</td>
<td>Student(s) have kept continuous contact during the work and have been on time both to meetings and in sending deliverables.</td>
<td>Student(s) have mostly sent deliverables on agreed dates. With only a few exceptions student(s) have been on time to meetings and reported continuously on their progress.</td>
<td>Student(s) have been late to meetings or in sending deliverables in a way that have hampered the process. The advisor had to prompt the students with questions about the status of the work.</td>
<td>Student(s) have a serious problem with keeping agreed to meeting and deadlines. Advisor have not been able to get a picture of the status of the work during the project.</td>
</tr>
<tr>
<td>Balance (Project)</td>
<td>A well-balanced collaboration where both students have a good grasp of all parts of the work.</td>
<td>A balanced collaboration where both students have a grasp of the whole work even though they have focused on slightly different parts.</td>
<td>A collaboration where both students have contributed equally to the work even if they have worked more independently on different parts.</td>
<td>An imbalanced collaboration where one student have contributed more than the other. Stronger students name: X</td>
</tr>
<tr>
<td>Ethical issues (Thesis)</td>
<td>Ethical issues analysed and discussed in report and have been fully addressed in design and execution of research.</td>
<td>Ethical issues addressed in research but only partly analysed and discussed in thesis.</td>
<td>Ethical issues only partly addressed in research and discussion is lacking.</td>
<td>Ethical issues not considered at all.</td>
</tr>
</tbody>
</table>
as the inclusion of ethical discussion in PhD theses.

Even higher impact is expected from the PIFF project, which will, through a web based support tool, including an informed consent template and evaluation criteria for the quality judgment of theses and thesis projects, regularly support Software Engineering students at Mälardalen University, Blekinge Institute of Technology and Lund University in thinking through ethical issues in their diploma work.

10. ACKNOWLEDGMENTS

The authors would like to thank Keith Miller, Martin Höst and Frank Lüders for reading the manuscript and offering valuable suggestions.

11. REFERENCES


A. TEMPLATE FOR INFORMED CONSENT FORM

For participants in research projects involving human subjects:

Title of project: X
Investigators: Y

Before agreeing to participate in this research study, it is important that you read the following explanation. This statement describes the purpose, procedures, benefits, risks, and precautions of the program. Also described are the alternative procedures available to you, as well as your right to withdraw from the study at any time.

Note to student: Text in square brackets is instructions for you on what you need to write and clarify in the different sections. When you write you should ensure that you cover all the underlined concepts.

A.1 Purpose of this Research/Project

[Subjects will be informed in clear, concise language about the nature of the study and the purpose for conducting the research. The total number of subjects involved and a brief description of the subject group will be given.]

A.2 Procedures

[The research procedures that involve human subjects will be explained so that the subjects will be fully informed about their role, what activities or functions they will be expected to perform, for how long, the number of times they are expected to appear and over what period of time. They must be told where the research will take place, what instrumentation is to be used, if any, and conditions involved. At the end of this section, the subjects must have a clear understanding of what will be expected of them.]

A.3 Risks

[Any risks or discomforts to the research subject must be fully disclosed. Risks may range from physical danger such as injury to emotional distress, consequences of disclosing personal and private opinion etc. Safeguards that are to be employed to reduce or minimize the risks will be described.]

A.4 Benefits

[The tangible or intangible benefits, if any, to the subjects who participate must be described. If no benefits accrue to the subjects, what are the larger societal benefits for conducting the research? After analysing and comparing the risks and the benefits it must be clear that the benefits are greater than the risks.]

A.5 Anonymity and Confidentiality

[The extent to which subjects will be identifiable must be explained. If anonymity is promised (individuals cannot be identified), you need to explain how that will be accomplished. If confidentiality is promised (individuals can be identified, but the researchers promise not to reveal that information), you must explain how that will be accomplished. Social security numbers should not be used as identifiers in place of names. You may also say, “at no time will the researchers release the results of the study to anyone other than individuals working on the project without your written consent.”]

[If taping (video or audio) is to occur, the subjects must be informed. You must state how the tapes will be secured and stored under whose supervision, who will score or transcribe, who will have access and when they will be destroyed.]

A.6 Compensation

[There is no requirement that subjects are compensated, but if they are, they must be fully informed. If no compensation is to be earned, subjects must be so informed.]

A.7 Freedom to Withdraw

Subjects are free to withdraw from a study at any time without penalty. If they choose to withdraw, they will be compensated for the portion of the time of the study (if financial compensation is involved). If they choose to withdraw, they will not be penalized.

Subjects are free not to answer any questions or respond to experimental situations that they choose without penalty. There may be circumstances under which the investigator may determine that a subject should not continue as a subject. The subject must be compensated for the portion of the project completed.

A.8 Subject’s Responsibilities

I voluntarily agree to participate in this study. I have the following responsibilities:

[List responsibilities]

A.9 Subject’s Permission

I have read the Consent Form and conditions of this project. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent:

Subject signature
Investigator(s) signature
Faculty advisor(s) signature

[NOTE: Subjects must be given a complete copy (or duplicate original) of the signed Informed Consent.]