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Ethics and the Military Industrial Complex: The Role of the Engineer

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Mechanical and Aerospace Engineering
MAE 4000: Seminar
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Outline

- **A personal story to give context to the subject at hand**
- **Technology and war – the insurmountable link**
- **The Manhattan Project**
- **Open discussion**
- **Daniels Fund Ethics Initiative Principles and how they apply**
- **When \$700B comes into play**

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A Personal Story: Context

- **I went to the United States Air Force Academy in the summer of 2006**
- **“On Loan” from the Air Force Research Laboratory at Edwards AFB, CA**
- **Sometime in 2008, I received the following...**

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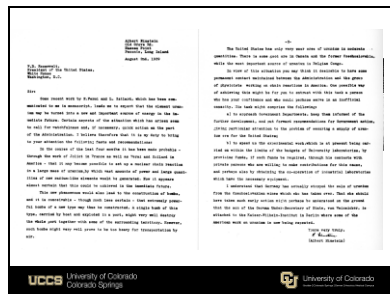
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Nuclear Weapons and Oppenheimer


- **Thought that “the bomb” would save lives by speedily ending WWII**
- **Aware of the fascist atrocities that could be stopped by an American atomic bomb**
- **Must do something to save Western civilization**
- **Hoped frightful power would deter future wars and force cooperation**

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Personal Conflict

- **J. Robert Oppenheimer**
 - “I am become death, the destroyer of worlds”
 - He later told a reporter that he dreaded failure, but he also dreaded success
 - He told a colleague, “Lord, these affairs are hard on the heart”
 - After Hiroshima
 - “Devil’s work”
 - “Known sin”
 - **Had blood on his hands**




J. Hiyia, “The Gita of J. Robert Oppenheimer,” *Proc. of the Am. Phil. Soc.*, Vol. 144, No. 2, June 2000.

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Before discussion...

- **A quick note on morals and ethics:**
 - **Morals:** A person’s standards of behavior or beliefs concerning what is and is not acceptable for them to do
 - **Ethics:** Moral principles that govern a person’s (or group’s) behavior
 - *The basic concepts and fundamental principles of decent human conduct. It includes a study of universal values such as equality, etc.*
- **Legality is another issue that will not be addressed here.**

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Before discussion...

- **Respect for everyone's opinion**
- This exercise is participatory in nature, but you are free to say nothing
- Non-attribution
- Stick to the subject at hand
- This town and many of its citizens are in a special position regarding this very issue
- Never discuss politics or religion, except they may be integral to one's morals...So, see the first bullet
- "Without meaning to be offensive..."
 - The discussion may offend some – but it is not intentional
 - We will be tolerant of other's views and live the first bullet

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Ethical Questions

- Can any engineer work on technology that won't be "transitioned" at some point?
- Does an engineer know ALL of the applications in which their technology could be put to use?
- Is it the responsibility of the engineer to worry about these things?
- Don't these advancements make everyday life better too?

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Ethical Questions

- What is the role of the engineer in making or improving weapons to be used in theaters of war?
- Do we trust our elected officials to use these weapons in the proper (ethical) way?
- It is all for a good cause, right? Democracy and all...
- How is war defined these days? Do we always know who we are fighting?
- Is improving accuracy an ethical dilemma or a morale obligation?
- Why does the engineer have to worry about any of this?

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Student Discussion Around the Daniels Fund Ethics Initiative Principles

- **Integrity**
 - Act with honesty in all situations
 - *Be honest with yourself*
 - *Trust of elected and appointed officials to "do the right thing"*
 - *Understand the consequences of the work you do*
 - *Don't do work that you don't agree with (morals)*
 - But, someone else will
 - Does this "force" us to do things we don't agree with?
- **Trust**
 - Build trust in all stakeholder relationships
 - *Trust of elected and appointed officials to "do the right thing"*
 - *Trust in military commanders in the use of developed tech*
 - *Trust in the "system" – worst on the planet except every other*
 - *Believing that the US does things for the good of all people – is this still true?*
 - *US military personnel are trusting engineers to help protect them in times of war – e.g. IED technology delivered in theater*

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- **Accountability**
 - Accept responsibility for all decisions
 - *The engineer must know potential outcomes – very firm on this*
 - *Not allowed in this environment to pretend to have your head in the sand*
- **Transparency**
 - Maintain open and truthful communications
 - *With your company, organization, etc. Yes.*
 - *With the public or even family, etc. Probably not.*
 - *Conundrum with S and TS projects*
 - *Does the public have a right to know?*
 - *Are you complicit just as a tax payer?*
- **Fairness**
 - Engage in fair competition and create equitable and just relationships

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- **Respect**
 - Honor the rights, freedoms, views, and property of others
 - *What about the lives of US soldiers and citizens versus citizens of other countries*
 - *Don't citizens in besieged countries have the right to defend their way of life?*
 - *Hard to tell a "soldier" from a civilian*
 - *What about civilian casualties?*
- **Rule of Law**
 - Comply with the spirit and intent of laws and regulations
 - *Issues? Yes especially around release of sensitive info*
 - *Snowden – hero or traitor? Either way, fugitive from US law*
- **Viability**
 - Create long-term value for all relevant stakeholders
 - *Some concern about not doing your technical best on a project you don't believe in – put other's lives at risk*

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Ethical Questions

- **Defense vs. Offense**
- **Development of defensive weapons can lead to war...what about that?**
- **The Defense industry:**
 - 20% GDP in 2011
 - About \$711 Billion
- **Freedom is not free**
- **A lot of \$\$ at stake**

Category	Value (Billion)
Total GDP	~1000
Defense Industry	~200

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