IST101 Topics 2014-15

1. **3D Printing** – Though the technology for three dimensional printing has been available for decades, it has only been in recent years that the cost for such technology has begun to be more affordable. As the cost of 3D printing continues to drop, it has the potential to significantly impact not only areas like manufacturing and medicine but society as a whole. Investigate current state of 3D printing and the impact that it will have in the years to come.

   Some possible added search terms: "3D printing", "3D printer", "additive manufacturing", "fused deposit modeling",

2. **Computer/Video Game Design** – The computer/video game industry is a multi-billion dollar business. Investigate the latest technological trends in the video game industry. What new computer technologies are being applied in the development of video games? How might advances in computer technology effect computer games in the next 3-5 years?

   Possible Search Terms: "computer game", "video game", development, design, graphics

3. **Driverless Cars** – It is possible that in less than 10 years we may be riding in cars that are self driven with no steering wheel at all. What sorts of technologies are being used to develop these driverless cars? What are some of the technological, safety, and ethical issues still facing the automotive industry in implementing this technology?

   Some possible added search terms: "self-driving car", "Google car", "self-directed car", "autonomous driving"

4. **Mobile Applications in the Classroom** – Mobile applications (AKA Apps) are now being used for many purposes beyond just the personal smartphone. One area where apps can have a positive impact is in education. How are apps being used in the classroom? In what ways are they being used at different grade levels (elementary, high school, college)? How might apps help students with a learning disability?

   Some possible added search terms: "mobile applications", app, elementary, "high school", student, dyslexia, attention deficit disorder

5. **Robotics in Manufacturing** – The use of machines that are programmed to perform certain tasks continues to become more widespread as computer technology advances. One area where these robots are used extensively is in manufacturing. Investigate the use of robotics in manufacturing. What are some of the innovative ways that robots are being used in manufacturing? What does the future hold for robotics in manufacturing?

Some possible added search terms: robot, robotics, manufacturing, technology, advanced manufacturing

6. **On-shoring IT jobs** – Historically, the computer industry (as in many other industries or business) found that it could be cost effective to move their operations out of the United States to other parts of the world where manufacturing and labor costs are lower. However in recent times, some companies are finding that it is beneficial to move some operations back to the United States. Investigate this bringing back or on-shoring of jobs. What are the advantages for doing this? What areas if IT benefit most from on-shoring?

   Some possible added search terms: on-shore (or onshore), insourcing

7. **Smart Gadgets** – As computing power becomes smaller, cheaper, faster, lighter, companies are marketing gadgets that could replace everything from glasses to watches. What are some of these gadgets? What will they do? And, most importantly, how could they improve users' lives?

   Some possible added search terms: Google glass, smart watch, wearable computers, apple, Google, android, augmented reality

8. **Drones** – What are some of the moral and legal implications of using drones in not only war zones but to police the towns and cities of the United States? How could corporations utilize drones to deliver goods or services to customers?

   Some possible added search terms: drones, armed forces, remotely piloted vehicles, United States, military, moral, legal, law enforcement, surveillance

9. **Internet Black Market**– The black market of the internet is a vast, unmonitored region of cyberspace. Are attempts being made to prevent the flow of guns, drugs, and stolen information? Whose responsible for creating this new "silk road" and why?

   Some possible added search terms: Bitcoin, Silk Road, drug trafficking, black market, invisible web, electronic money, cyber crime, hacking, hackers

10. **Active Cyber Defense** - Criminals aren't the only people attempting to gain access to sensitive information. The United States, China, and Russia regularly engage in cyberspace warfare. How are these operations conducted? What does international law say about such cyber warfare? Can these online battles spill over into the real world and cause harm to a country's citizens?

Some possible added search terms: cyber defense, cyber warfare, cyberterrorism, military, United States, China, internet, international law, hacking, hackers

11. **Big Data** – Anyone who accesses the internet generates data by the megabyte. How are companies using the data they acquire? Is this a violation of privacy or by simply using the service does one agree to data collection? Could all of this data be used positively by the government or education agencies?

Some possible added search terms: big data, government, science, privacy, security, education, spying, human behavior, marketing

12. **Organ-on-a-chip** – Discuss how technology can help humans live longer, healthier lives. For example, microchips can now be used to help or replace organ functions. Can biotechnology be used to replace animal testing? Can biosensors be used to monitor our health in real time so that doctors can monitor human health more accurately?

Some possible added search terms: "organ-on-a-chip", cells, animal testing, biotechnology, human organs, microchips, biosensors