Education and Training

CANBERRA COLLEGE
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Assessment Item 2

NATIONALLY RECOGNISED TRAINING

Robotics & Intelligent Systems (11720(T) 11788(A) 1.0

Semester 1, 2018

Information Technology 1192(T) 1193(A)

NAME: _____

Teacher: Sanjay Sharma **Due Date: 6/5/2018**

TASK CRITERIA	TASK	DUE DATE	WEIGHTING
1, 2, 3 & 4	Research Assignment	Week 9	30%

VET Competencies Assessed in this Item:

Code	Competency Title	Core/Elective
BSBOHS201A	Participate in OHS processes	Core II
ICAICT201A	Use computer operating system and hardware	Core II
ICAICT202A	Work and communicate effectively in an IT environment	Core II &III
ICAICT203A	Operate application software packages	Elective II

Criteria assessed in this Item:

Students will be assessed on the degree to which they demonstrate:

1. knowledge, understanding, application, analysis and evaluation
2. planning, designing, creating and implementing
3. communication and interpersonal skills
4. flexible, adaptive and creative thinking

General Assessment Criteria A/T/V/M

TASK CRITERIA	TASK	DUE DATE	WEIGHTING
1, 2, 3 & 4	Practical Test	Week 5	20%
1,2, 3 & 4	Research Assignment	Week 9	30%
1, 2, 3 & 4	Theory Test	Week 12	20%
1, 2, 3 & 4	Assignment	Week 17	30%

IMPORTANT ASSESSMENT INFORMATION

The following are important factors common to all units of study at the Canberra College. See **Staff and Student Assessment Handbook** for details.

- **ATTENDANCE AND PARTICIPATION**
- **LATE SUBMISSION OF WORK**
- **COMPETENCY – BASED ASSESSMENT**
- **RECOGNITION OF CURRENT COMPETENCIES (RCC) and PRIOR LEARNING (RPL)**
- **NOTIONAL ZEROS**
- **COMPENSATION**
- **CHEATING AND DISHONEST PRACTICE**
- **PLAGIARISM/ELECTRONIC SUBMISSION OF ASSIGNMENTS**
- **MODERATION PROCEDURES**
- **UNIT SCORE CALCULATION (where applicable)**
- **RIGHT TO APPEAL**

Conditions for Item:

This is an INDIVIDUAL task and the final product submitted for assessment must be the students' own work. Submitting anything other than your own work is regarded as a breach of discipline and penalties may apply.

- You must acknowledge all sources of information.
- You must submit by the due date as per the submission instructions given to you by your teacher.
- You must include a declaration that all work presented is original and is your own.
- This task is to be done over 2 weeks.
- You will receive minimal teacher assistance – look in your notes & conduct your own research.
- Provide comprehensive answers and examples to illustrate your understanding.

Aim:

- To demonstrate your knowledge of the history of Robotics, our increasing dependence on them and ethical and other issues fast paced technological development pose, by researching & formulating detailed responses to specific questions.
- Demonstrate high level research and analytical skills by finding information, logically and creatively presenting it as a research report.

Task:

The goal of this assignment is to deeply examine the evolution of **robots**, the changing nature of the role they play and concerns about the impact of fast paced development in Artificial Intelligence, nanotechnology and increased dependence on intelligent machines may have on our future.

For your assignment, you will need to study the article "Why the future doesn't need us", published in **Wired** magazine on April 2000, and conduct your own extensive research on the history, evolution and the future of Robotics, development of human-level computing power, nanotechnology, genetic engineering, self-replicating nanoscale machines and unplanned rapid technological advancement.

The total length of your assignment needs to be **6 pages or less**, typed, 11pt minimum. I won't read anything beyond 6 pages. In your write-up, you should address as much of:

- Bill Joy's article covers a lot of ground. In your introduction, explain:
  - In summary, what exactly are his concerns?
  - How qualified is he to be raising these concerns? Should we take him seriously?
  - He says that he is not a Luddite. What is a Luddite? Do you agree?
  - He also mentions something about the Unabomber, Ted Kaczynski. Briefly, who was this person, what was his background, what did he do & why? What changed him? What was his goal? What are your thoughts on the dystopian scenario, the passage quoted from his manifesto in the article?
- What are some of these emerging technologies that Bill Joy is so concerned about? Do you think humans will become or fuse with robots soon, or eventually? Or become hopelessly dependent on them? What alternative do human have? What trend do you foresee?
- What do you think of the second quoted passage, "The Short Run (early 2000's)"? Are we headed towards a Star Trek like Borg disaster?
- He says that the new 21st century technologies are potentially much more catastrophic than anything before because of a special amplifying factor. What is it?
- He gives many examples of how humans, technologists, scientists and politicians share a common fault – failing to understand the consequences of new inventions while in the rapture of new inventions and innovation. What examples of Murphy's Law and unintended consequences are described? What are your thoughts & opinions on these?

- What examples does Bill give of new technologies that eventually lead to more problems, much worse than the benefits they were invented to provide?
- According to your research, how likely is it that what Bill Joy articulates, the accelerated development of new technologies will lead to computers having human-level computing capability? Then how likely do you think that this massive computing capability combined with technological breakthroughs in molecular electronics, nano-technology, genetic engineering, etc. will lead to the creation of replicating assemblers and eventually the grey goo problem?
- What is/was the two dreams of Robotics? Does this align with what your expectations are of Robots & Robotics? What kind of Robot do you want?
- What can we, as technologists, our leaders, scientists, politicians and society do to mitigate these dangers? In your opinion, backed by research, are these dangers even real or just academic nonsense? Are there dangers in these technologies and do we face an extinction risk? What are the moral & ethical implications? What alternatives are there? Any way we can protect ourselves?
- Research problems we already have with technology mentioned in this article. Nano-particle pollution, build up in the human body, robotics & privacy, intelligent software that adapts as it gathers information, profiling and privacy issues, antibiotic resistance, GM crops, nuclear energy, weapons and the arms race, etc.
- Do you think that we will soon or eventually build "as a by-product, weapons so terrible that no one will bother with weapons as primitive as ballistic missiles"? Will we survive our technologies?
- What are the obstacles to eliminating these potential threats? How can we secure our future? Have governments, scientists and researchers learnt from past mistakes?
- Write a suitable conclusion. Do you see a utopian future for the human race? Will our technologies overcome us & lead us to extinction? Who needs to take responsibility?

Of course, correct spelling and grammar are expected. Assignments not written at a senior/college level of expression will be penalised.

Reports must be original, and in your own words. **You must reference and properly cite all quotations.**

Submission

All documents/files are to be saved in a folder named Y***our_Name_Robotics_Research_Assignment*** (eg John_Smith_Robotics_Research_Assignment) and submitted via Google Classroom.

Your folder must include the following:

- Research report & references

You must keep an up to date copy of your work in your h: drive at all times as well as a backup on another device/location.

Marking Criteria – Robotics Research Assignment

EXCEEDS REQUIREMENTS	MEETS REQUIREMENTS	BELOW REQUIREMENTS	MARKS / COMMENTS
Evidence of extensive research conducted in writing the essay. A wide variety of reputable sources used to back assertions & statements. Citations in text and proper referencing evident.	Evidence of adequate research conducted in writing the essay. A variety of reputable sources used to back assertions & statements. Some citations in text and proper referencing evident.	Little evidence of research conducted in writing the essay. Few to no sources used to back assertions & statements. No citations in text and attempt made at referencing.	**/24**
Detailed and relevant examination of the evolution of Robots, artificial intelligence and the impact of fast paced development on our future. More than 6 elements addressed and very high level descriptions of each element.	Good and relevant examination of the evolution of Robots, artificial intelligence and the impact of fast paced development on our future and the environment. At least 6 elements addressed and good descriptions of each element.	A basic examination of the evolution of Robots, artificial intelligence and the impact of fast paced development on our future and the environment. At least 2 elements addressed and adequate descriptions of each element.	**/22**
Correct spelling and grammar throughout and written at above senior/college level of expression. Excellent overall structure of the essay & makes interesting reading with insightful views. Report presentation is outstanding, well laid out, has a title page with relevant details, structured into sections & appropriate paragraphs with an accurate and precise executive summary, and detailed conclusion at the end of the report clearly outlining the findings of the investigation/research. References included follow accepted academic conventions. Essay is original, and in own words with proper referencing.	Correct spelling and grammar throughout and written at senior/college level of expression. Good overall structure of the report and ideas follow a logical sequence. Report presentation is neat, well laid out, structured into sections & appropriate paragraphs. References included follow accepted academic conventions. Essay is original, and in own words with proper referencing.	Mostly correct spelling and grammar throughout and written at high school or lower level of expression. Report presentation is neat with appropriate paragraphs. References are listed. Essay is mostly original, and in own words with referencing attempted.	**/18**

Strong Introduction of topics key questions & terms. Clearly delineates subtopics to be reviewed. An insightful and highly descriptive and precise outline of concerns detailed by Bill Joy. A very high level description of all of - major elements. Comprehensive coverage of social, environmental and ethical issues – 3 or more issues. Comprehensive coverage of current and future trends that applies to programming and affects – 2 trends in comprehensive detail. Strong review of key conclusions. Strong integration with topic and focus of paper. Insightful discussion of the impact of technology. All assertions above backed by a variety of reputable sources correctly referenced.	Introduction conveys topic & key questions. Describes subtopics to be reviewed. A precise outline of concerns detailed by Bill Joy. A good description of all of - major elements. Good coverage of social, environmental and ethical issues – 1 to 2 issues in ample detail. Good coverage of current and future trends that applies to programming and affects – I trend in ample detail. Review of key conclusions. Some integration with topic and focus of paper. Discusses the impact of technology. All assertions above backed by a variety of reputable sources correctly referenced.	Introduction does not adequately convey topic. Dos not describe subtopics to be reviewed. Attempted description of concerns detailed by Bill Joy. Basic coverage of social, environmental and ethical issues – 1 issue in basic detail. Basic coverage of current and future trends that applies to programming and affects – I trend in basic detail. Does not summarize evidence or review. Does not discuss the impact of technology. Assertions not backed by any source and attempted referencing.	**/36**

VET Competencies:

Result	Vocational competencies assessed via this task		Aspect of task addressing competency
	BSBOHS201A	Participate in OHS processes	Proper & safe use of computer equipment & evacuation drills
	ICAICT201A	Use computer operating system and hardware	Logging in correctly, starting apps, printing & saving work locally & in the Cloud
	ICAICT202A	Work and communicate effectively in an IT environment	Conducting research, peer collaboration, use of social media
	ICAICT203A	Operate application software packages	Creating, preparing & editing report

Final Comment: