



Orange High School

ASSESSMENT TASK NOTIFICATION

Subject:	Preliminary Engineering Studies
Topic:	Biomedical Engineering Report
Class Teacher:	D Boundy
Head Teacher:	D Wait
Year:	11
Date Given:	11/8/2020
Date Due:	Week 6, Term 3 (Tuesday 25 th August 2020)
Weighting:	30%

Outcomes Assessed:

P1.1, P1.2, P2.2, P3.2, P3.3, P4.1

Assessment Outline:

Biomedical Engineering is an important field of engineering that promotes the well-being and longevity of human life. Through the innovations of artificial limbs/joints, surgical equipment, the bionic ear, artificial hearts and now the advancement of 3D printed organs, Biomedical Engineering is a valued and important engineering requirement. This engineering report introduces the student to Biomedical Engineering and the amazing innovations that have been developed.

What the Task Involves:

1. Scope of the Engineering Profession (15 marks)

- (i) **Explain** the nature and the range of work of Biomedical Engineers.
- (ii) **Identify** and **produce** a table of the training requirement for Biomedical Engineering.
- (iii) **Identify** and **describe** significant innovations in the field of biomedical engineering to trace the historical development that has improved human well-being over time. (Chronological order)

2. Impact of Biomedical Engineering (10 marks)

- (i) **Identify** and **explain** the societal and ethical issues for Biomedical Engineering that impact on people's lives. (*Negative and Positive impacts should be considered*)
- (ii) Through research, **identify** and **discuss** new technologies in Biomedical Engineering that are providing a large impact on human life.

3. Materials of Biomedical Engineering (10 marks)

- (i) **Identify** a material used in Biomedical Engineering and **analyse** the following:
 - a. Microstructure,
 - b. Composition (constituents),
 - c. Mechanical/Service properties, that are required for the successful application of the material in the biomedical engineering field.

4. The Engineering Report (10 marks) – Presentation of your work

- (i) Evidence in the appropriate use of the internet.
- (ii) Evidence in correct researching processes.
- (iii) Evidence of the use of appropriate word processing skills.
- (iv) Correct presentation/format of the finished engineering report.
- (v) Zero plagiarism encountered throughout engineering report.

Advice on Acknowledging of references, format and submission:

Completing the Bibliography

Complete the bibliography following the steps below. This is for any resource you have used, images, text, videos etc. You must include these details in your bibliography, it will be returned if it is not.

- a. Authors name: Surname first, then first initial or name.
- b. Title of document/website in 'single quotation marks'
- c. Date of publication
- d. (Online) Available
- e. <full URL>
- f. [Date of access in Brackets]

Assessment Expectations

It is expected that this research report should be a substantial document that will showcase your skills in researching and using Information and Communication Technologies to compile a report on the topics highlighted in the Assessment Task.

Refer to the Assessment Policy set by Orange High School for details that are consistent with standard assessment criteria. If an assessment is late you must follow the Assessment Policy guidelines or accept the zero mark for the late submission for the assessment task. A Misadventure Form should be submitted as per guidelines with relevant supporting documentation. If circumstances are known prior to the submission date, students are required to inform prior to the assessment task due date.

Assessment Format and Submission

You will use **Microsoft Word or the like** to present your Engineering Report. You will be required to present your report via uploading to the Google Classroom, or present on a USB, or email to david.boundy2@det.nsw.edu.au By no later than 9am on the morning of submission date.

Engineering Report Criteria:

Students should add all of the following sections to gain possible full marks in the Engineering report section of the marking criteria.

- 1. Title Page (with image)
- 2. Abstract/Summary
- 3. Table of Contents
- 4. Introduction
- 5. Body (contains data, results etc)
- 6. Conclusion
- 7. Appendix
- 8. Bibliography

Student Notes:

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Marking Criteria

Student Name:

Criteria for:	Mark
1. Scope of the Engineering Profession	
Clearly addresses all sections and demonstrates an extensive understanding of the Biomedical Engineering Profession and current innovations. Develops a chronological time-line and discusses 3 innovations.	13-15
Addresses all/some of the sections, demonstrating a sound understanding of the Biomedical Engineering profession and innovations. Collates a collection of historical references in a timeline format discussing 2 innovations.	5-12
Demonstrates a limited level of understanding of the Biomedical Engineering and/or completes minimal sections. No recognisable chronological time-line highlighting less than 2 innovations.	0-4
2. Impact of Biomedical Engineering	
Demonstrates a clear and extensive understanding of societal and ethical issues for human life through biomedical engineering. All section should be completed and clearly explain positive and negative impacts with new technologies be attributed to human impacts.	8-10
Completes all/some of the sections and demonstrates a sound understanding of the societal and ethical impacts that affect human life in conjunction with technologies which improve human well-being.	4-7
Briefly describes some societal and ethical impacts which, demonstrates a limited and basic level of understanding.	0-3
3. Materials of Biomedical Engineering	
Correctly identifies a material for biomedical engineering with analysis that demonstrates extensive knowledge of the; microstructure, composition and mechanical/service properties. The students demonstrate an outstanding knowledge of the material and clearly evaluates its purpose for use.	8-10
Identifies a material and demonstrates a sound understanding and knowledge of the material used in biomedical engineering. All or some of the criteria has been addressed.	4-7
Briefly identifies some components of material properties, forming processes and functionality.	0-3
4. The Engineering Report	
Demonstrates an excellent understanding in writing an Engineering Report, structuring this report to the required format and level of ICT requirements. Student correctly acknowledges research from at least 4-5 sources. No Plagiarism identified.	4-5
Demonstrates a sound understanding in writing an Engineering Report, structuring parts of this report to the required format and level of ICT requirements. Student partially acknowledges research from at least 1-3 sources. No Plagiarism identified.	2-3
Demonstrates a limited understanding in writing an Engineering Report, structuring parts of this report to the required format and level of ICT requirements. Limited (1-2) to no sources acknowledged. Plagiarism identified.	0-1
Total:	/40
Cumulative Assessment Mark:	/30

Comments:

.....

.....

.....

.....

.....

.....

.....

.....

Dotted lines for writing.

Student Signature: Date:

Teacher Signature: Date: