

Evaluation

- List the basic shapes and techniques you have used in creating the pen barrel.

- List the features / basic shapes and techniques you have used in decorating the pen barrel.

- Any feelings / reflections about using TinkerCAD / 3D printing? What is the shape of the pen barrel (geometry / symmetry / asymmetry / beauty / fun / creative)?

- Please comment about your design (1 - 10)
Cannot meet the requirement **0 1 2 3 4 5 6 7 8 9 10** Outstanding

Teacher Comment			Marks
Design Process	CAD Drawing Technique	The basic shape of the pen barrel The basic shape of pen tip Refill hole accuracy Personalized design/decoration	/50
	Design Concept	Form / cross-section fit for purpose Personalized design/decorative beauty and creativity Appearance The suitability of 3D printing	
Production Process	Safety	No sharp edges No weak point Pen barrel and decorations are reasonably strong and not easy to break	/50
	Function of the product	Can be firmly fitted with stainless steel refill Pen barrel grip comfortably Smart use of computer-aided design software: TinkerCAD Use of three-dimensional printing technology: feature size is suitable, FDM is not suspended Conservation of resources / compact size	
Project Guideline	Completeness	Design considerations product analysis Evacuation	Highest extra 5 points
Total			/100

Name : _____ ()

Course Code : _____

Computer Aided Design Competition

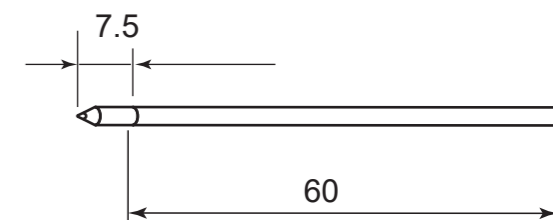
Situation

3D printing is well known as a one of the most important technologies in 21 century, as a technological student, you should be familiar with it.

Design Brief

Design and 3D print of a fun / creative / beautiful pen barrel to be fitted with a 4C stainless steel pen refill.

Designs of 77 marks or above and the design of highest mark in the class will be printed with Ultimaker 3 or ProJet 660 Pro 3D Printer.

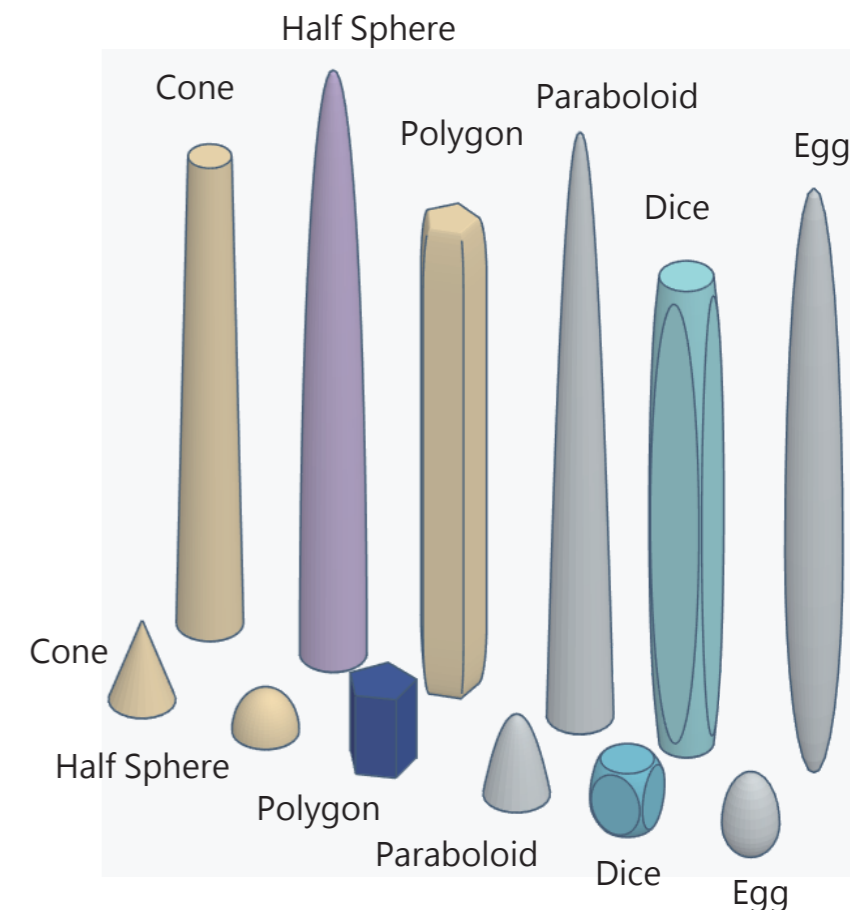
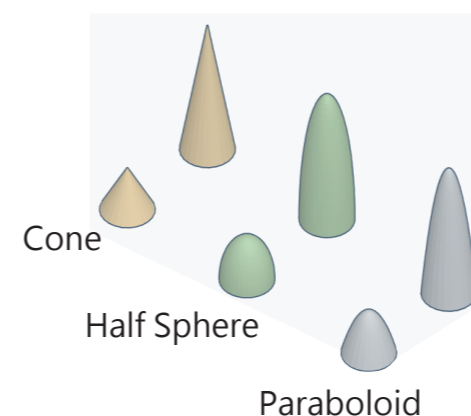


Design Considerations/ Limitations

Pen refill diameter is _____ and length is _____.
The length of the pen barrel is related to the size of _____.
Appearance: beautiful, meaningful, fun and creative.
The _____ of pen barrel : The relationship between the shape (squareness/five side/hexagonal/octagonal or elliptical shape) and the grip comfort .

The basic shape of the pen

The basic shape of the Pen Tip



學生檢討及自評

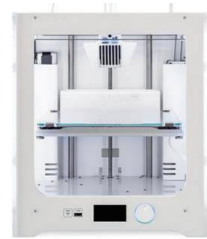
列舉所有繪製筆桿的造型及技巧：

列舉所有創製裝飾的造型及技巧：

有否任何感想(Tinkercad / 立體打印)? 筆桿的外形如何(幾何/對稱/不對稱/美觀/有趣/具創意)?

請給自己的作品評分 (0 - 10)

* 完全達不到要求 0 1 2 3 4 5 6 7 8 9 10 表現優秀



評分標準			得分
設計及傳意	CAD繪畫技巧	筆桿的基本造型 筆桿咀的基本造型 筆芯孔的準確性 個人化設計/裝飾	/50
	設計意念	筆桿造型/橫切面的適切性 個人化設計/裝飾的美感和創意 整體的外觀 立體打印的適切性	
學生作品	安全	沒有尖角利邊 沒有過度突出部份/弱點 筆桿和裝飾物合理強度，不易破爛	/50
	功能	能穩固裝入不銹鋼筆芯 筆桿舒適握持 善用電腦輔助設計軟件：Tinkercad 善用立體打印科技：特徵尺寸合適、FDM沒有懸空部份 節約資源：尺寸精巧	
習作指引	設計指引完成度	設計考量 產品分析 檢討	最高額外獎5分
總分			/100

學生姓名： _____ ()

課程編號： _____

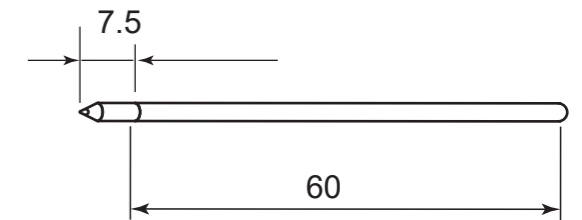
電腦輔助設計暨立體打印比賽

情境

立體打印技術能協助釋放個人創意，更被譽為是第三次工業革命或21世紀最重要的科技，作為現代學生認識立體打印是不可或缺的一部分。

設計綱要

設計及立體打印一件有趣/創意/造型優美的原子筆桿，筆桿必須可插入4C不鏽鋼筆芯。所有77分或以上的設計均會以Ultimaker 3熱熔堆疊成型立體打印機或噴墨式全彩立體打印機ProJet 660 Pro 製成產品原型。



設計考量

4C不鏽鋼原子筆芯的直徑是_____及長度是_____。
筆桿的長度跟_____的尺寸有關。
外型：美觀、有意義、有趣及具創意。
筆桿_____：四方/五邊/六邊/八邊或橢圓形與握筆舒適度的關係。

筆桿適用的基本造型

筆咀適用的基本造型

