**FYP planning template**

**This FYP form is to help you properly plan your FYP and consider all the elements are in place before your FYP registration can be confirm and you can proceed to work on your FYP. Your FYP is used to demonstrate your engineering expertise to show to the school that you deserve to graduate as a Mechanical Engineer when you have successfully completed it.**

Gray text is the example text place holder. Please overwrite the grey text with your own FYP information.

|  |  |
| --- | --- |
| Student Name: |  |
| FYP Title: | Use of discarded hair to be recycled into a sound and heat insulation material |
| Problem Existing: | Lots of Hair collected at the hair dresser or barber is discarded |
| Objective: | To develop and engineer a process to  turn hair cuttings into sound and heat insulation material |
| Literature Review | <https://materialdistrict.com/article/human-hair-insulation-material/>  Reference List |
| Engineering Involved: | Materials testing and analysis  Sound and heat insultation testing and analysis  Design and manufacture of a compression device to manufacture hair insulation material  Engineering Drawings  Engineering specifications  Engineering  standards: Sound insulation testing. ISO 16283-3:2016(en) Acoustics  Heat insulation testing ISO 8302:1991(en)Thermal insulation  Arduino programming and sensor  Data analysis and collection |
| Resources required: | Temperature  sensor,  Mic of SPL sensor, Arduino board, |
| FYP workplan/Timeline:  FT : 2 semesters  PT: 4 semesters | Aug: FYP introduction and objectives  Sep: Literature Review/Engineering Standards  Oct: Conceptual design of  Hair compressor device  Nov/Dec: Fabrication of hair compacting device, interim report.  Jan : Setup, wiring programming of heat and sound SPL sensor with Arduino.  Design expt setup.  Feb: Conduct expts . Test different hair densities  Mar: Data analysis  Apr: Report writing and submission |
| Location of FYP that it will be conducted at | Will be done at my own hall of residence and at my friend’s company premises. May require the use of the Dyson Studio to do some light engineering work. |
| Estimated FYP expenses to be incurred.  consumable budget that can be claimed from the MAE) | I estimate will need about $350 to cover cost of FYP.  Components (sensors, power supplies etc) = $100  Materials (Al angle bar, plastic sheets, iron rods)= $$75  Fabrication (cost for machining the materials) = $175 |
| Student’s Current CGPA | 3.2 |
| Student’s Intended FYP grade goal | B+ |

**FYP Guide:**

A FYP should compose of any of the following engineering expertise…….**(Mandatory – Red Text)**

Abstract

Table of Contents, Figures, Formulas

Problem statement (introduction)

Engineering challenges and solutions

Scope of work (introduction)

Literature review

Those in this first section can be In the Draft Report

**FYP engineering expertise (Choose Several to offer for your FYP). You are welcome to propose your own.**

* Conceptual designs
* Conceptual Generation
* Function Analysis
* Conceptual Synthesis
* Morph Chart
* Embodiment Design
* Detail Design
* Drive systems, machine elements
* Engineering standards
* Simulation
* Modelling
* Design of experiments
* Mechanical Engineering analysis (Strength of materials, FEM, Fluid, Vibration etc…)
* Electrical and Electronics Calculations
* Engineering drawings
* Circuit diagrams (wiring)
* Programming (sensors)
* Programming (Arduino, Raspberry Pi etc…)
* 3D printing
* Hardware build (proof of concept) – Highly Recommended
* Results and testing

Results.

Conclusion

Discussion and Future Work

References

FYP grading guide…

FYP engineering Expertise

A banding : 12 and above expertise (way better if FYP work was published in a research paper, conference or journal)

B banding : 8 – 11 expertise

C banding: 5 - 7 expertise

Suggested FYP timeline:

July/Aug Planning and work out Problem statement (introduction)

Engineering challenges and solutions

Aug/Sep Literature Review

Sep/Oct Conceptual Designs

Nov/Dec Detail Design and Building of Prototype (Submit Draft report)

Jan/Feb Testing and experiments of Prototype, collection of data

Mar Fine tuning, revision/improvements of FYP quality

Mar/Apr Write up of final FYP report. 3rd to 4th week Apr, submit FYP report

May (week 2, Mon/Tue – FYP presentation)

May (end May, upload FYP report to NTU library)