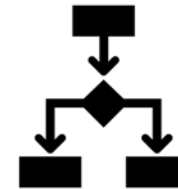
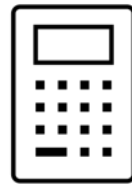




Mechanical Engineering



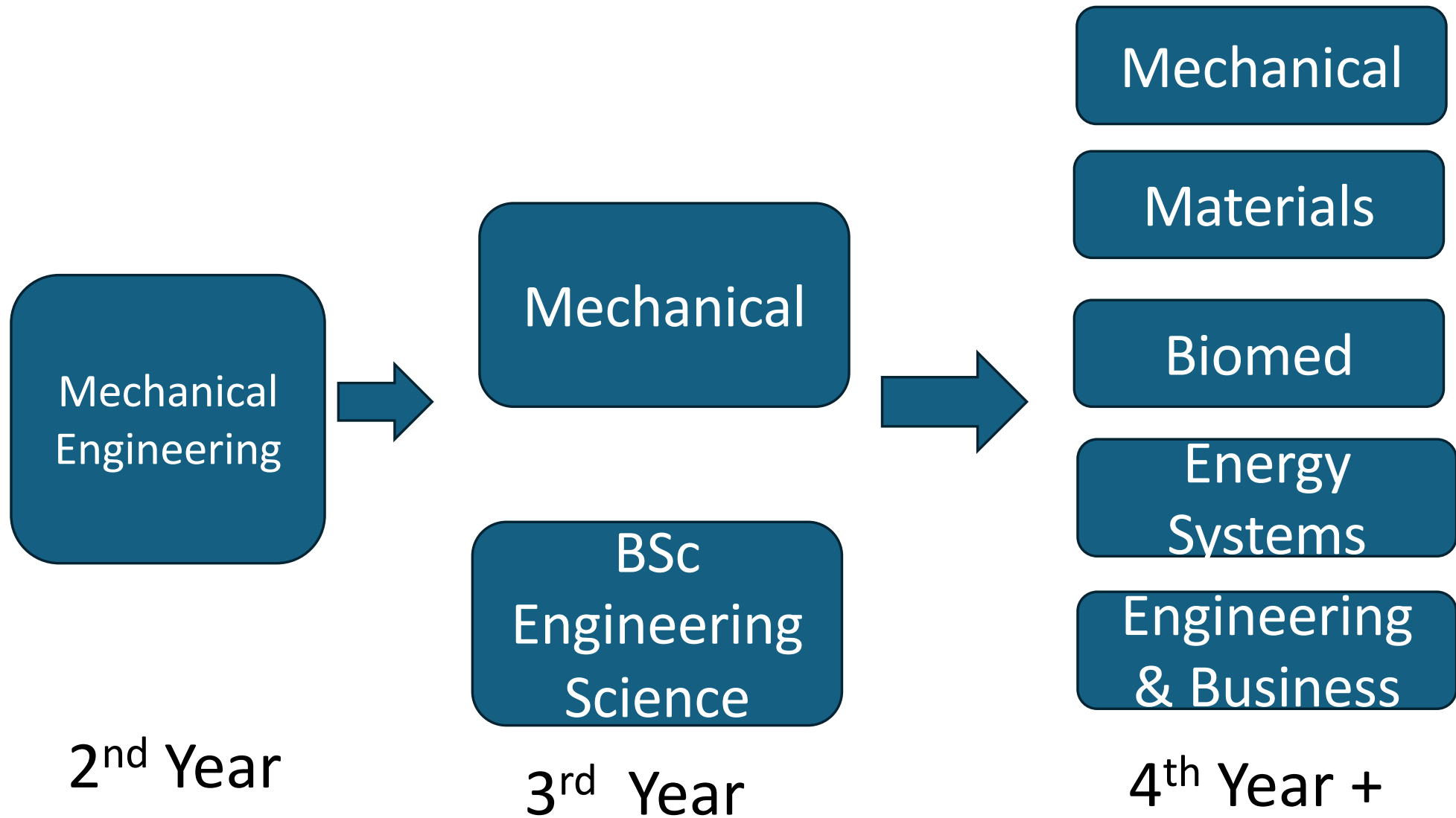
Why Mech Eng?

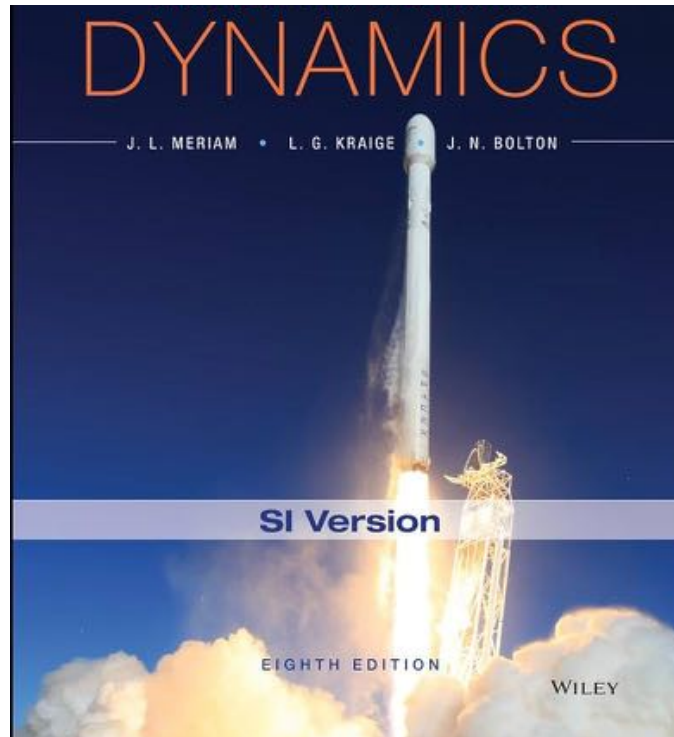
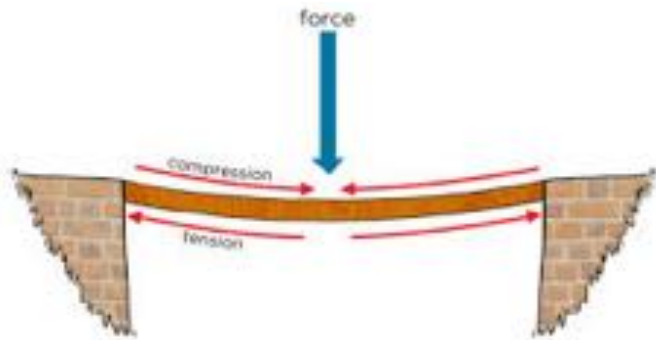


Unsure

Math's &
Physics

Lots of
Choice





FLUID MECHANICS



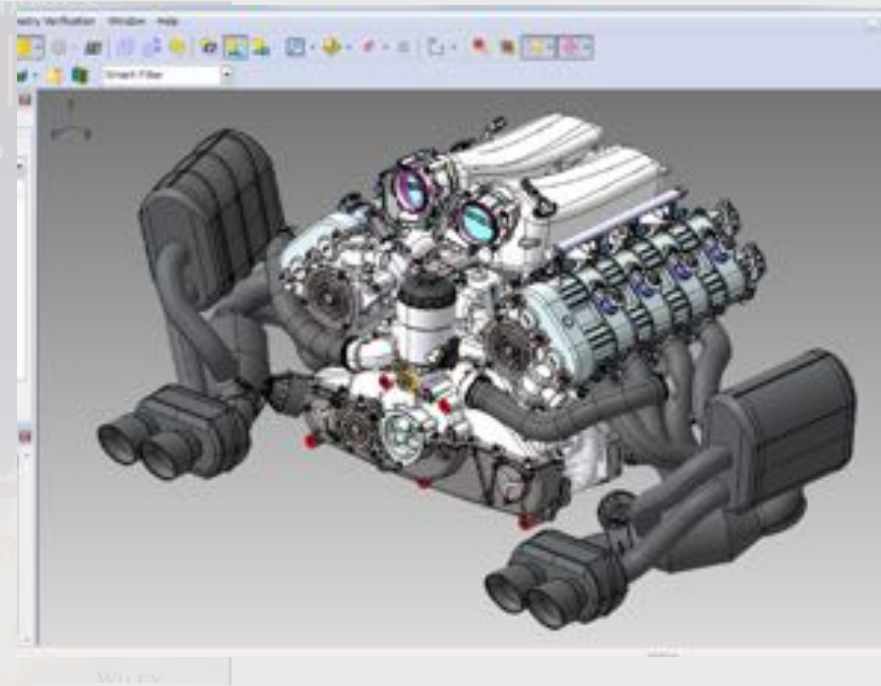
What will you Study?

ENGINEERING MECHANICS
DYNAMICS
L. G. KRAIGE

Σ \int $\sin^2 3\pi$ $x = 2 \text{ m}^2$ $\int \frac{A^2 \times 100 z^2 + B^2}{EMC}$ $\sqrt{2e-4}e$ $\lim_{x \rightarrow 0} \frac{1}{x}$ $\lim_{x \rightarrow 0} \frac{1}{x^2}$ $\lim_{x \rightarrow 0} \frac{1}{x^3}$ $\lim_{x \rightarrow 0} \frac{1}{x^4}$ $\lim_{x \rightarrow 0} \frac{1}{x^5}$ $\lim_{x \rightarrow 0} \frac{1}{x^6}$ $\lim_{x \rightarrow 0} \frac{1}{x^7}$ $\lim_{x \rightarrow 0} \frac{1}{x^8}$ $\lim_{x \rightarrow 0} \frac{1}{x^9}$ $\lim_{x \rightarrow 0} \frac{1}{x^{10}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{11}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{12}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{13}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{14}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{15}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{16}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{17}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{18}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{19}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{20}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{21}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{22}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{23}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{24}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{25}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{26}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{27}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{28}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{29}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{30}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{31}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{32}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{33}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{34}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{35}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{36}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{37}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{38}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{39}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{40}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{41}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{42}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{43}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{44}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{45}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{46}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{47}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{48}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{49}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{50}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{51}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{52}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{53}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{54}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{55}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{56}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{57}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{58}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{59}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{60}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{61}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{62}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{63}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{64}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{65}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{66}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{67}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{68}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{69}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{70}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{71}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{72}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{73}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{74}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{75}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{76}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{77}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{78}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{79}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{80}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{81}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{82}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{83}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{84}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{85}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{86}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{87}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{88}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{89}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{90}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{91}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{92}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{93}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{94}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{95}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{96}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{97}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{98}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{99}}$ $\lim_{x \rightarrow 0} \frac{1}{x^{100}}$

MATHEMATICS

$\log \frac{x}{y} = \log x - \log y$ $\log \frac{x^2}{y} = 2 \log x - \log y$ $\log \frac{x^3}{y^2} = 3 \log x - 2 \log y$ $\log \frac{x^4}{y^3} = 4 \log x - 3 \log y$ $\log \frac{x^5}{y^4} = 5 \log x - 4 \log y$ $\log \frac{x^6}{y^5} = 6 \log x - 5 \log y$ $\log \frac{x^7}{y^6} = 7 \log x - 6 \log y$ $\log \frac{x^8}{y^7} = 8 \log x - 7 \log y$ $\log \frac{x^9}{y^8} = 9 \log x - 8 \log y$ $\log \frac{x^{10}}{y^9} = 10 \log x - 9 \log y$ $\log \frac{x^{11}}{y^{10}} = 11 \log x - 10 \log y$ $\log \frac{x^{12}}{y^{11}} = 12 \log x - 11 \log y$ $\log \frac{x^{13}}{y^{12}} = 13 \log x - 12 \log y$ $\log \frac{x^{14}}{y^{13}} = 14 \log x - 13 \log y$ $\log \frac{x^{15}}{y^{14}} = 15 \log x - 14 \log y$ $\log \frac{x^{16}}{y^{15}} = 16 \log x - 15 \log y$ $\log \frac{x^{17}}{y^{16}} = 17 \log x - 16 \log y$ $\log \frac{x^{18}}{y^{17}} = 18 \log x - 17 \log y$ $\log \frac{x^{19}}{y^{18}} = 19 \log x - 18 \log y$ $\log \frac{x^{20}}{y^{19}} = 20 \log x - 19 \log y$ $\log \frac{x^{21}}{y^{20}} = 21 \log x - 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58 \log y$ $\log \frac{x^{60}}{y^{59}} = 60 \log x - 59 \log y$ $\log \frac{x^{61}}{y^{60}} = 61 \log x - 60 \log y$ $\log \frac{x^{62}}{y^{61}} = 62 \log x - 61 \log y$ $\log \frac{x^{63}}{y^{62}} = 63 \log x - 62 \log y$ $\log \frac{x^{64}}{y^{63}} = 64 \log x - 63 \log y$ $\log \frac{x^{65}}{y^{64}} = 65 \log x - 64 \log y$ $\log \frac{x^{66}}{y^{65}} = 66 \log x - 65 \log y$ $\log \frac{x^{67}}{y^{66}} = 67 \log x - 66 \log y$ $\log \frac{x^{68}}{y^{67}} = 68 \log x - 67 \log y$ $\log \frac{x^{69}}{y^{68}} = 69 \log x - 68 \log y$ $\log \frac{x^{70}}{y^{69}} = 70 \log x - 69 \log y$ $\log \frac{x^{71}}{y^{70}} = 71 \log x - 70 \log y$ $\log \frac{x^{72}}{y^{71}} = 72 \log x - 71 \log y$ $\log \frac{x^{73}}{y^{72}} = 73 \log x - 72 \log y$ $\log \frac{x^{74}}{y^{73}} = 74 \log x - 73 \log y$ $\log \frac{x^{75}}{y^{74}} = 75 \log x - 74 \log y$ $\log \frac{x^{76}}{y^{75}} = 76 \log x - 75 \log y$ $\log \frac{x^{77}}{y^{76}} = 77 \log x - 76 \log y$ $\log \frac{x^{78}}{y^{77}} = 78 \log x - 77 \log y$ $\log \frac{x^{79}}{y^{78}} = 79 \log x - 78 \log y$ $\log \frac{x^{80}}{y^{79}} = 80 \log x - 79 \log y$ $\log \frac{x^{81}}{y^{80}} = 81 \log x - 80 \log y$ $\log \frac{x^{82}}{y^{81}} = 82 \log x - 81 \log y$ $\log \frac{x^{83}}{y^{82}} = 83 \log x - 82 \log y$ $\log \frac{x^{84}}{y^{83}} = 84 \log x - 83 \log y$ $\log \frac{x^{85}}{y^{84}} = 85 \log x - 84 \log y$ $\log \frac{x^{86}}{y^{85}} = 86 \log x - 85 \log y$ $\log \frac{x^{87}}{y^{86}} = 87 \log x - 86 \log y$ $\log \frac{x^{88}}{y^{87}} = 88 \log x - 87 \log y$ $\log \frac{x^{89}}{y^{88}} = 89 \log x - 88 \log y$ $\log \frac{x^{90}}{y^{89}} = 90 \log x - 89 \log y$ $\log \frac{x^{91}}{y^{90}} = 91 \log x - 90 \log y$ $\log \frac{x^{92}}{y^{91}} = 92 \log x - 91 \log y$ $\log \frac{x^{93}}{y^{92}} = 93 \log x - 92 \log y$ $\log \frac{x^{94}}{y^{93}} = 94 \log x - 93 \log y$ $\log \frac{x^{95}}{y^{94}} = 95 \log x - 94 \log y$ $\log \frac{x^{96}}{y^{95}} = 96 \log x - 95 \log y$ $\log \frac{x^{97}}{y^{96}} = 97 \log x - 96 \log y$ $\log \frac{x^{98}}{y^{97}} = 98 \log x - 97 \log y$ $\log \frac{x^{99}}{y^{98}} = 99 \log x - 98 \log y$ $\log \frac{x^{100}}{y^{99}} = 100 \log x - 99 \log y$

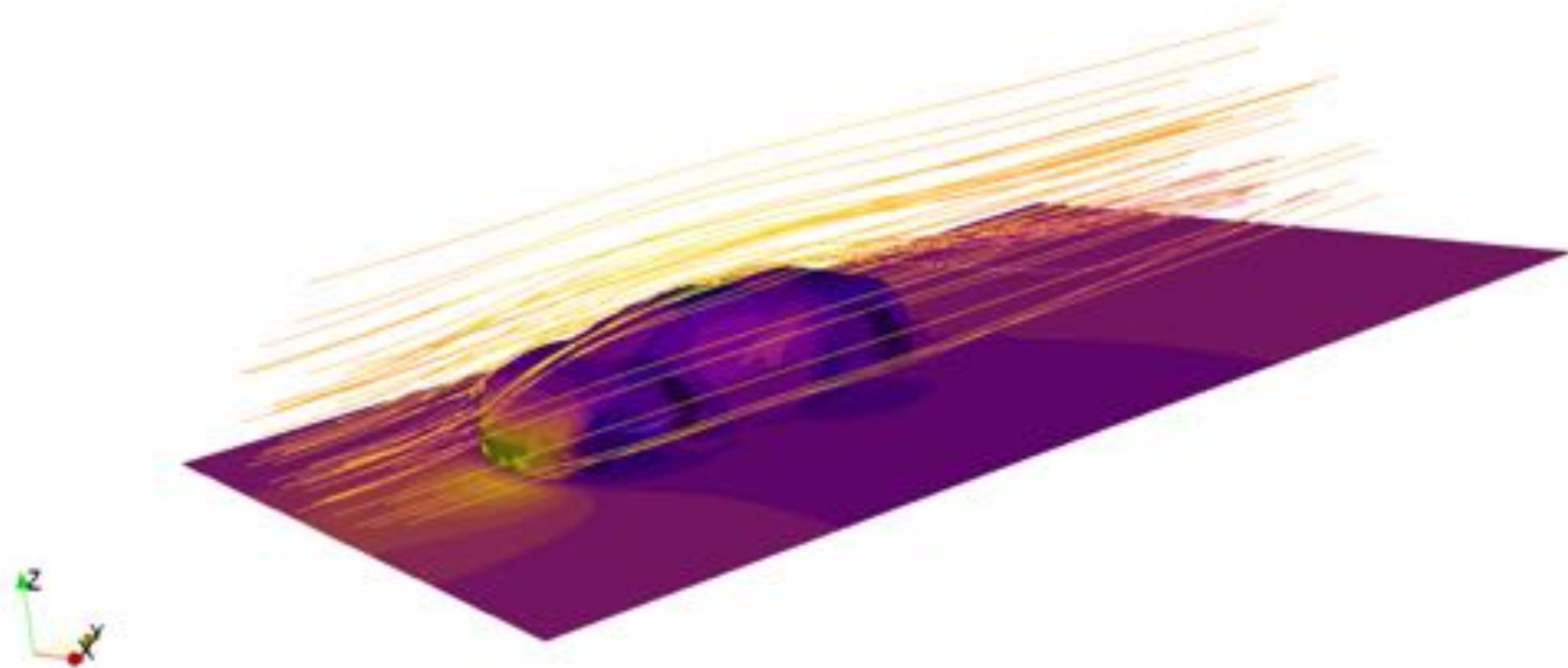
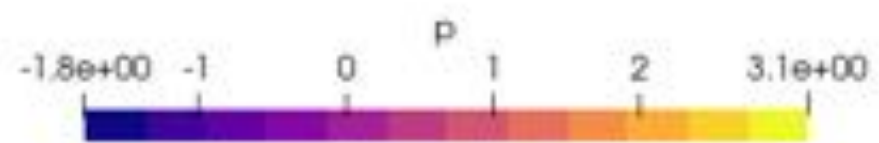


SI Version
EIGHTH EDITION
WILEY

$a = \frac{F}{m}$ $V = \frac{S}{t}$ $I = \frac{U}{R}$ $I = \frac{\mathcal{E}}{R+r}$

Physics

```
base64.cc
31 void base64_encode(const uint8_t * data, size_t length, char * dst)
32 {
33     size_t src_idx = 0;
34     size_t dst_idx = 0;
35     for (; src_idx + 2 < length; src_idx += 3, dst_idx += 4)
36     {
37         uint8_t s0 = data[src_idx];
38         uint8_t s1 = data[src_idx + 1];
39         uint8_t s2 = data[src_idx + 2];
40
41         dst[dst_idx + 0] = charset[(s0 & 0xfc) >> 2];
42         dst[dst_idx + 1] = charset[((s0 & 0x03) << 4) | ((s1 & 0xf0) >> 4)];
43         dst[dst_idx + 2] = charset[((s1 & 0x0f) << 2) | (s2 & 0xc0) >> 6];
44         dst[dst_idx + 3] = charset[(s2 & 0x3f)];
45     }
46
47     if (src_idx < length)
48     {
49         uint8_t s0 = data[src_idx];
50         uint8_t s1 = (src_idx + 1 < length) ? data[src_idx + 1] : 0;
51
52         dst[dst_idx++] = charset[(s0 & 0xfc) >> 2];
53         dst[dst_idx++] = charset[(s0 & 0x03) << 4] | ((s1 & 0xf0) >> 4);
54         if (src_idx + 1 < length)
55             dst[dst_idx++] = charset[(s1 & 0x0f) << 2];
56     }
57 }
```





University of Colorado
Boulder



Queen's
UNIVERSITY



THE UNIVERSITY
of EDINBURGH



UNIVERSITÉ
DE LYON



UNIVERSITY OF
BIRMINGHAM

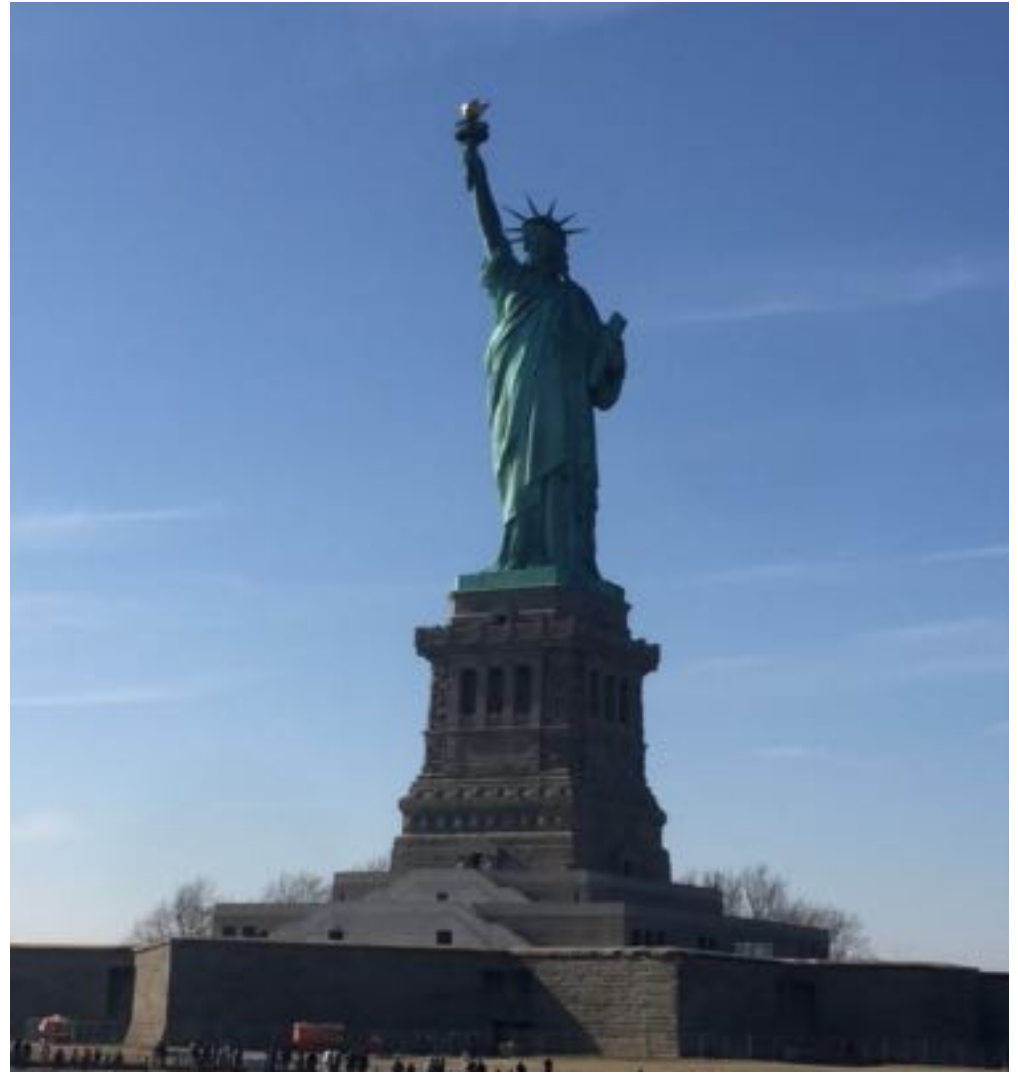


4 Modules instead of 6

Travelled lots around US

Stay for the Summer

Chance to Study in top
University



Internship



8 Months

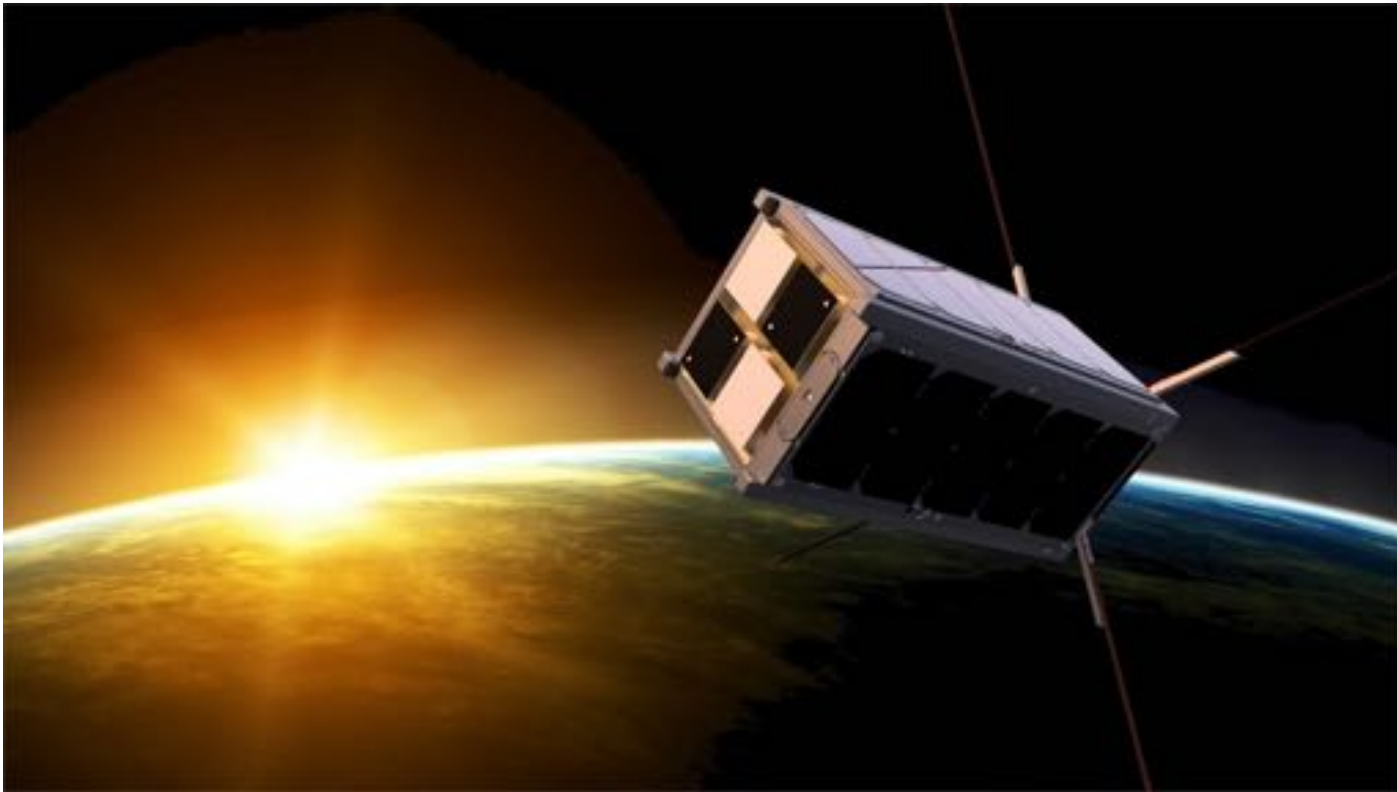


What you like/or what you don't like



Graduate work after

Thesis



BE & ME

Studying a Satellite
Thermal systems

All of 5th year

Infrastructure



Pharma & Med Devices



Other Industries

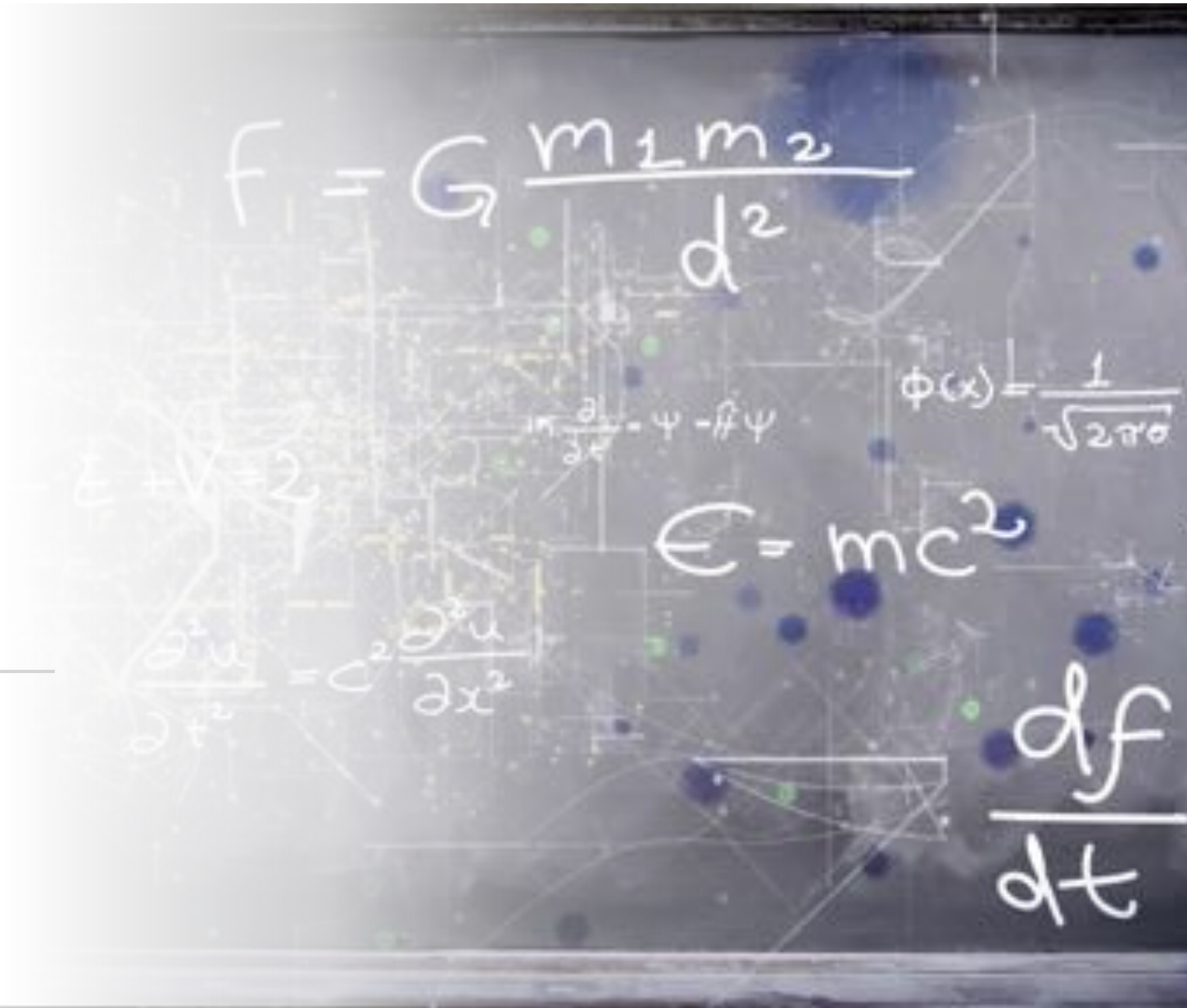


Future



Why I chose Material Science and Mechanical Engineering

HENRY START – 5TH YEAR
ENGINEERING STUDENT



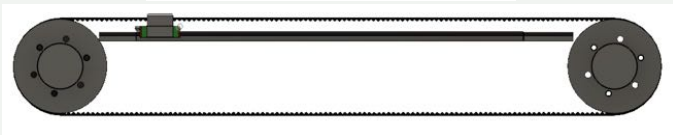
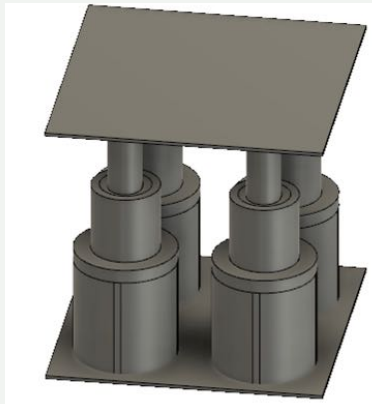
How to decide?

Where do I want to be in 5 years?

What kind of job do I want?

What do I enjoy? What do I not enjoy?

Why choose mechanical engineering for your undergrad



Versatility

Flexibility

Design experience

Interesting topics

- Fluid dynamics
- Thermodynamics
- Material science
- Applied dynamics

To find the full module list google: UCD DN150

What can you do with a Mechanical engineering degree?



1) Mechanical Engineering



2) Engineering with business



3) Material Science & Engineering



4) Energy Systems Engineering



5) Biomedical Engineering

Not just studying



Why I chose the Materials Science Masters

Still didn't know what I wanted to do



Much more module flexibility

9 option modules compared to 1



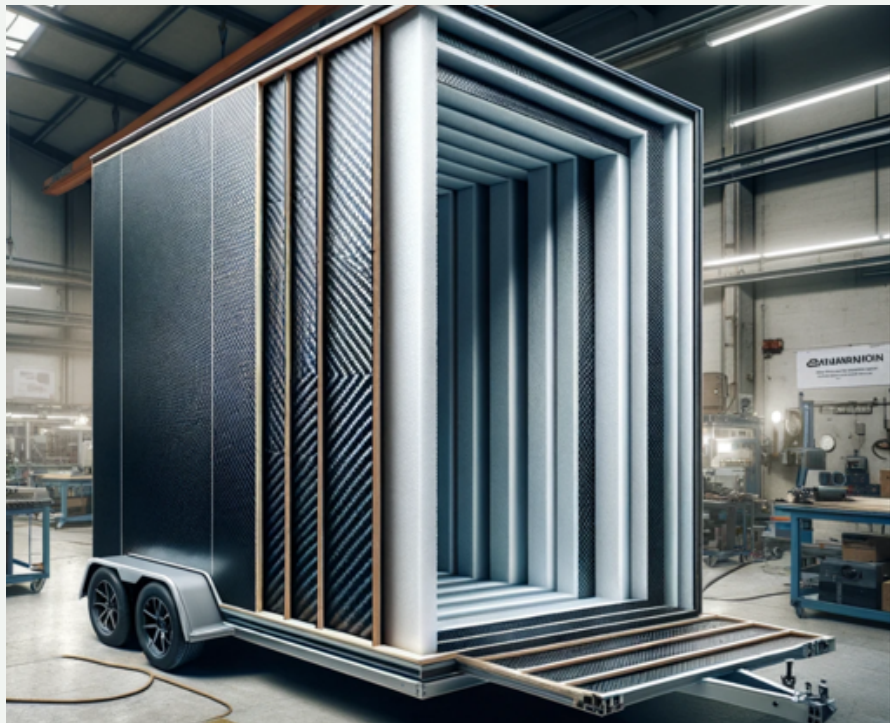
Can choose modules from:

Mechanical

Bio-mechanical

Energy systems

Masters Project – Carbon fibre composite testing



Internship opportunities

Get access to more internships

I did mine in FoodMarble which is a med-tech start up working on product design and optimisation

Skills used:

Coding

Product design

Device diagnosis and testing



Take home points



Enjoy college, join a society or sports club



If you feel overwhelmed talk to someone



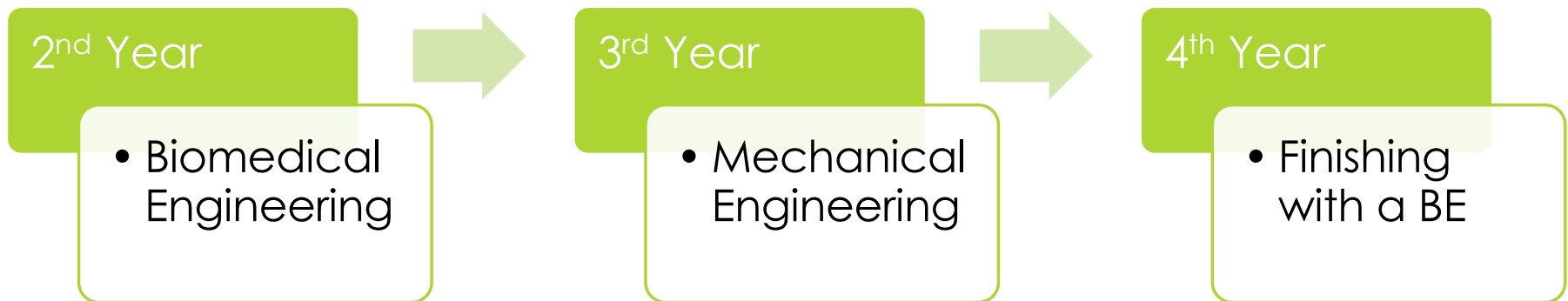
Do a J1 or go on Erasmus, you wont get those opportunities once you leave college



Introduction

- ▶ Sarah Joyce
 - ▶ 4th Year BE Mechanical Engineering
 - ▶ Contact: sarah.joyce3@ucdconnect.ie
-

My Journey





Why Mechanical?

- ▶ Most flexible/versatile
 - ▶ Work in sustainability
 - ▶ Modules that develop other skills
-

Work Experience

DIAGEO



Future Plans





Tips/Advice

- ▶ Don't be scared to be confused
- ▶ Look online:

<https://www.youtube.com/@ProfJeffreyChasnov>

<https://www.youtube.com/@MichelmanBiezen>

- ▶ Go to the talks/open days
 - ▶ Enjoy your time here
-



Thank You
Questions?



Mechanical Engineering

Gráinne O'Reilly

About me

23

From Dublin

5th year
mechanical
engineer –
masters

Why I chose mech

Favourite modules were mechanical based

Lots of Maths but not too abstract

Broad stream and can specialise further later on

- Mechanical
- Energy
- Biomedical
- Materials
- Mech & Business

Favourite modules

- First year
 - Physics for engineers
 - Linear algebra
 - Mechanics for engineers
- Second year
 - Materials science & engineering
 - Mechanics of solids I
 - Heat transfer
 - Electives -> French & Italian

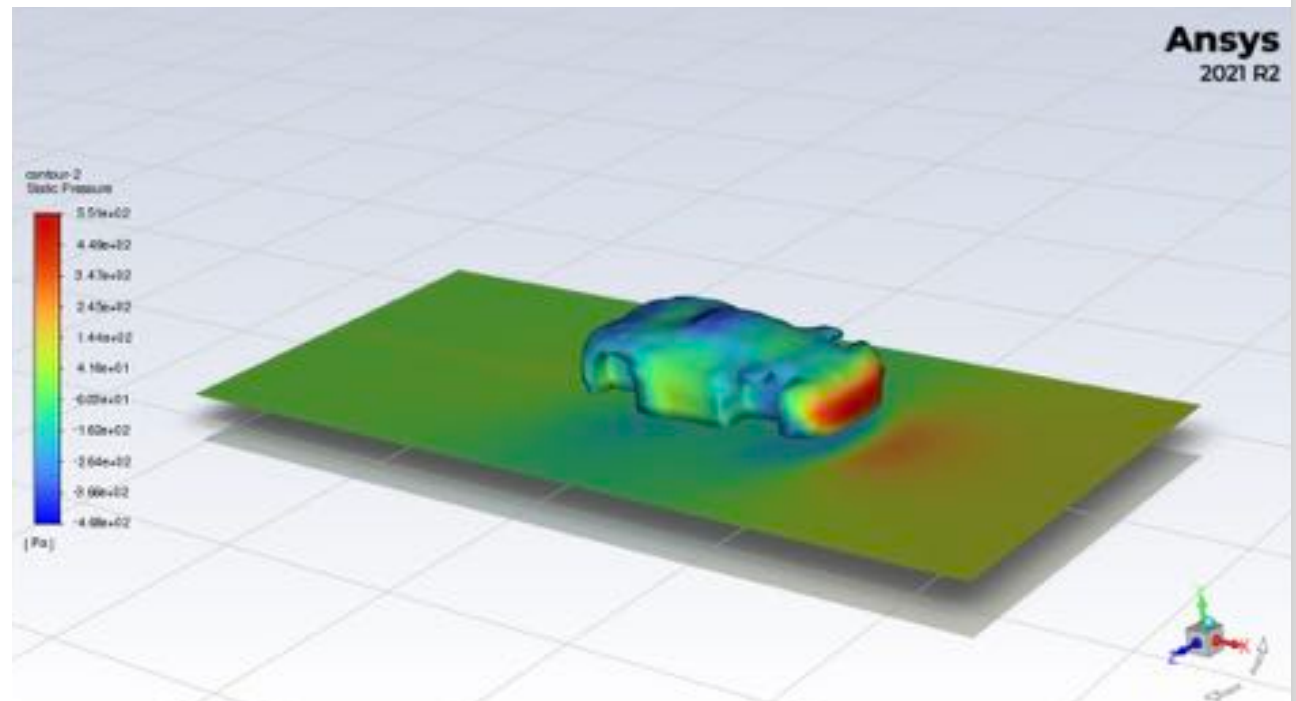
Favourite modules

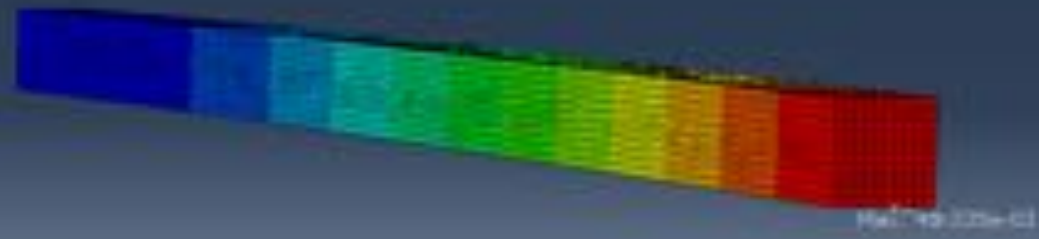
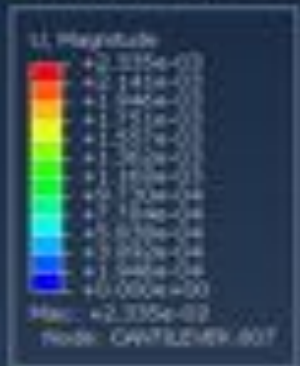
- Third year
 - Thermodynamics
 - Mechanics of solids II
 - Mechanical engineering design
- Or Erasmus



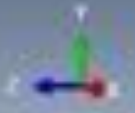
Favourite modules

- Fourth year
 - Fracture mechanics
 - Computation continuum mechanics
 - Manufacturing engineering





mesh 0001, has been fully integrated.
 HCB: 001PreCumulativeJob - MinusElement 2000 - Tue Mar 14 03:37:12 GMT Standard Time 2020 :
 Step: 2000 :
 Component: U, Magnitude
 Primary var: U, Magnitude
 Secondary var: Cumulative Super Factor: +1.234e+00



Life outside UCD – jobs / internships

- Worked full time with Walls Construction
- January – August 2023



Other work experiences

Pharmaceutical –
AbbVie, Alexion

Engineering
infrastructure and
manufacturing –
Arup

Consumer
electronics –
Logitech

Energy
engineering –
Eirgrid, ESB

Life outside UCD – jobs / internships

Worked part-time with
Walls September 2023 –
January 2024

Have been giving grinds
in Maths & Irish since
first year

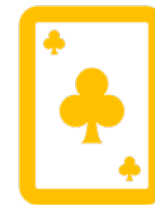
Life outside UCD – hobbies



Main hobby – rock climbing



Other sports – hockey and swimming



Other hobbies – going out for dinner, pub quizzes

Life outside UCD – future plans

Travelling 2023 -> South Africa, Paris

```
graph TD; A[Travelling 2023 -> South Africa, Paris] --> B[Work with Walls Construction]; B --> C[Travelling 2024 -> backpacking around Central America]; C --> D[Work abroad for 2 years before returning to Ireland to work];
```

Work with Walls Construction

Travelling 2024 -> backpacking around Central America

Work abroad for 2 years before returning to Ireland to work



Thank you!

Any questions?