

Product Design

Reading list

Materials for Engineers and Technicians – 5th Edition – ISBN 10 – 1856177696

This renowned text has provided many thousands of students with an easily accessible introduction to the wide-ranging subject area of materials engineering and manufacturing processes for over thirty years.

If you have access to the Beckfoot 365 pages, the fourth edition of the book can be read here:

<https://becbd.sharepoint.com/BecLearners/Technology/Phase%203%20Resistant%20Materials/SiteAssets/SitePages/Home/Materials%20for%20Engineers%20-%204th%20edition.pdf>

This is an interesting article about the Journey of inventor and entrepreneur James Dyson:

<https://www.bbc.co.uk/news/business-46149743>

TV Programme

This is a BBC reality documentary 'Design for life', which sees world famous designer Philippe Starck become the Alan Sugar of the design world in an apprentice style competition that sees 12 young designers compete to win a 6 month work placement/ internship at Starck's agency in Paris.

Episode one

<https://www.youtube.com/watch?v=vwtOGBxtl10&t=8s>

Episode two

<https://www.youtube.com/watch?v=je93FRMyg-4>

Episode three

<https://www.youtube.com/watch?v=9vKUFA1yT7o>

Episode four

<https://www.youtube.com/watch?v=Du1UC5tt8q4>

Episode five

<https://www.youtube.com/watch?v=7ef4059D2DA>

Episode six

<https://www.youtube.com/watch?v=RTNQV8avpv4>

Useful websites

Register with;

<https://www.designweek.co.uk/>

<https://www.tomorrowengineers.org.uk/>

Subscribe to;

<https://www.dezeen.com/>

And look at;

<https://www.designboom.com/>

Films and documentaries to watch

Materials Documentaries; *All on 365 Video Channel*

There are some great documentaries here on metal, plastics and everyday materials.

https://becbd.sharepoint.com/portals/hub/_layouts/15/PointPublishing.aspx?app=video&p=p&chid=b50533d5-7461-4665-8917-c8cf2fd92ee5&vid=11115cb7-3dc9-4a96-96d2-805b50927f0c

https://becbd.sharepoint.com/portals/hub/_layouts/15/PointPublishing.aspx?app=video&p=p&chid=b50533d5-7461-4665-8917-c8cf2fd92ee5&vid=653e5562-fae4-4172-8993-f93bd1804890

https://becbd.sharepoint.com/portals/hub/_layouts/15/PointPublishing.aspx?app=video&p=p&chid=b50533d5-7461-4665-8917-c8cf2fd92ee5&vid=ecb04fc8-7200-4f8c-8921-549a46962f11

If you don't have access to 365 then this channel with lectures on materials by Professor Mark Miodownik is a good starting point.

<https://www.youtube.com/playlist?list=PLdCLGkOehS8Nw41kPv1jL8JW8dtimwrER>

Design;

If you have access to 365 here are some great documentaries on design.

https://becbd.sharepoint.com/portals/hub/_layouts/15/PointPublishing.aspx?app=video&p=p&chid=b50533d5-7461-4665-8917-c8cf2fd92ee5&vid=81ce86ae-47b9-498b-9b3d-31ea59547d72

https://becbd.sharepoint.com/portals/hub/_layouts/15/PointPublishing.aspx?app=video&p=p&chid=b50533d5-7461-4665-8917-c8cf2fd92ee5&vid=211ddff3-8923-4447-8d54-a85aa42db9a6

https://becbd.sharepoint.com/portals/hub/_layouts/15/PointPublishing.aspx?app=video&p=p&chid=b50533d5-7461-4665-8917-c8cf2fd92ee5&vid=c62b4e23-c8b6-43f3-b550-41749d48e45a

If you don't have access to 365 here is a link to a series by the BBC called The Genius of Design. https://www.youtube.com/playlist?list=PLaszIH__EYXMzOfjsgv4O3mL1gni6SoXk

Environmental Issues;

If you have access to 365, then this documentary on the secret life of Rubbish is excellent.

https://becbd.sharepoint.com/portals/hub/_layouts/15/PointPublishing.aspx?app=video&p=p&chid=b50533d5-7461-4665-8917-c8cf2fd92ee5&vid=efa005f8-a797-44e6-ab3f-35c82651a273

https://becbd.sharepoint.com/portals/hub/_layouts/15/PointPublishing.aspx?app=video&p=p&chid=b50533d5-7461-4665-8917-c8cf2fd92ee5&vid=2e09a6bb-c205-482a-b20b-733030002ad0

This can also be found on YouTube

Part one - <https://www.youtube.com/watch?v=knOV2favJWU>

Part two - <https://www.youtube.com/watch?v=zq4VxBK8eTU>

Transition tasks

- ❑ [Environmental Issues assignment](#)



SAY NO TO PLASTIC!

NotJustBamboo bottles are produced with zero waste-, holistic-, cradle-to-cradle- and circular economy-perspectives. It's the world's first hand-crafted one-piece bamboo bottle, each individually hand-drilled in local Vietnamese homes, using skills passed down through generations.

NOBEL PEACE CENTER

3.2.8 Responsible design

Environmental issues

Be aware of, and able to discuss, the importance environmental issues in design and manufacture, including:

- the responsibilities of designers and manufacturers in ensuring products are made from sustainable materials and components
- the environmental impact of packaging of products, eg the use of excessive packaging and plastics.

Conservation of energy and resources

Be aware of, and able to discuss, the concept of a circular economy, including:

- how products are designed to conserve energy, materials and components
- the design of products for minimum impact on the environment including raw material extraction, consumption, ease of repair, maintenance and end of life
- sustainable manufacturing including the use of alternative energy and methods to minimise waste
- the impact of waste, surplus and by-products created in the process of manufacture including reuse of material offcuts, chemicals, heat and water
- cost implications of dealing with waste
- the impact of global manufacturing on product miles.

The poster on the previous page can be found in the Nobel Peace Centre in Oslo. Clearly Norwegians understand what this means, and the phrases used in the advertisement. These are all topics you should be familiar with and have an opinion on.

In the question on the next page, you are to discuss the poster, the product (using other examples to make your point) and how society has or has to respond to the topics raised in the poster.

Before you do this, you will have to research and understand the phrases used in the poster;

- Cradle to Cradle Design
- Circular Economy or linear economy
- Holistic Design
- Zero Waste Design

E	D	C	B	A	Max
7	9	11	13	15	18

Comment;

- The design of products for minimum impact on the environment including raw material extraction, consumption, ease of repair, maintenance, end of life, disposal and energy use
- Sustainable manufacturing including the use of alternative energy and methods to minimise waste
- The impact of waste, surplus and by-products created in the process of manufacture
- Cost implications of dealing with waste
- The impact of global manufacturing on product mile.
- A circular economy aims to use materials in a way that ensures a continuous cycle of reuse and remanufacture