AUT

A FUTURE IN **INDUSTRIAL DESIGN**

WHAT IS INDUSTRIAL DESIGN?

Height adjustable office furniture, eco-coffins, medical humidifiers, smart IP sport cameras ... industrial designers are at the forefront of technological advances. They take a human-centred design approach, always looking at opportunities to create new design solutions.

Industrial designers are the advocates for the user/human within a research and development team. They are technology interpreters or visionaries who emphasise the creation of meaningful uses for new technology or materials.

Industrial designers take users' needs into account, finding innovative ways to improve the design and usability of existing products and/or design new solutions, including products and services with social and environmental benefits.

At its core, industrial design defines and improves how humans interact with and perceive objects (which solve user problems). 'Product' solutions are developed with a Design Thinking or human-centred design approach. It may take the form of a tangible 3D object or product such as a piece of furniture, or an improved user experience or service such as an internet connected possum trap.

Innovation may also be the result of social shifts or the re-phrasing of an existing problem or solution.

The outlook for industrial design services is expected to improve as consumer demands increase for new, well designed and easy to use products.

Are you good at visualising and a practical problem solver?

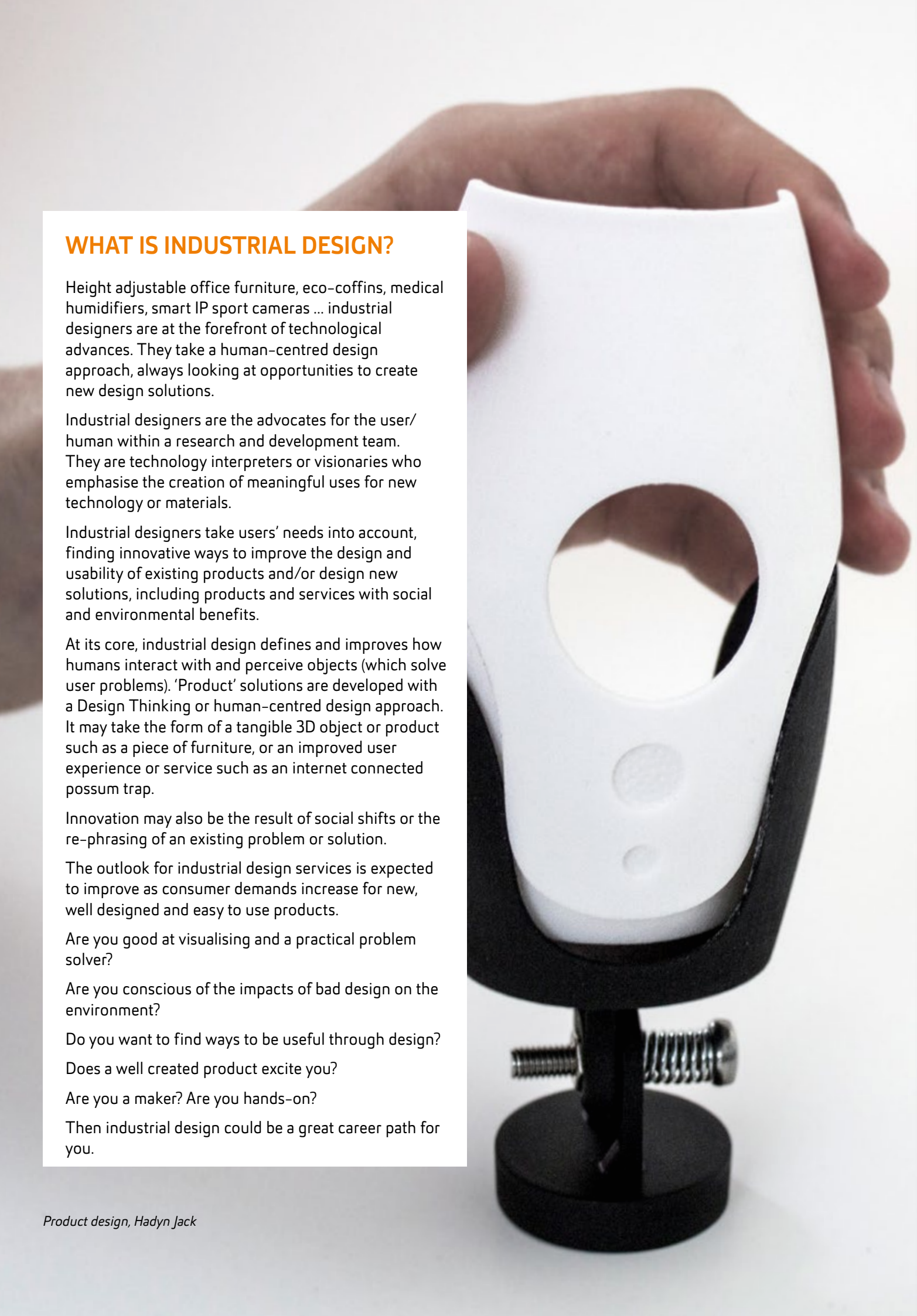
Are you conscious of the impacts of bad design on the environment?

Do you want to find ways to be useful through design?

Does a well created product excite you?

Are you a maker? Are you hands-on?

Then industrial design could be a great career path for you.



Product design, Hadyn Jack

OUTLOOK AND TRENDS

Purchase consciousness – The consumer is becoming more educated about the design and process of industrial design work and more conscious of what they are purchasing. This will lead to less mass production which challenges the product design industry to produce products that are environmentally responsible, ethically made and socially conscious, but also well priced. There needs to be a balance between creativity, good ideas and the ability to execute them.

Influence of 3D printing – Rapid prototyping/ additive manufacturing processes and CAD design and development is bringing huge change to industrial design. The technical parameters and restrictions that traditionally occur with mass production are becoming blurred, e.g. although still rare, some aviation manufacturers now store aviation-part files and create parts as required rather than stocking thousands.

Technological advances – Industrial designers need to adopt new skills. Coding, data modelling, algorithm design, voice scripting and gesture design are becoming increasingly necessary design skills that create new ways of describing and communicating ideas.

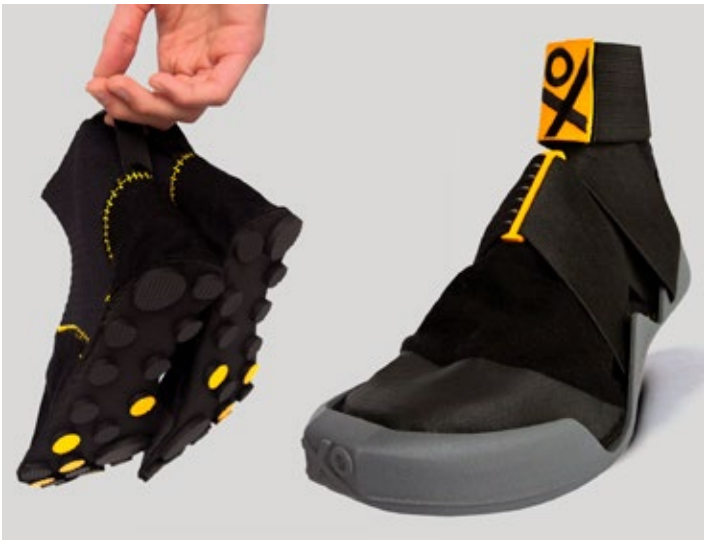
(Source: Mark Rolston via fastcodesign.com)

Human centred thinking & co-design – Today's designer delivers a product ready for manufacturing and consumption. Tomorrow's designer must be prepared to sit alongside the customer over the life of that product helping to adapt and customise the product for the customer over time. They must connect with the user and have empathy for the person they are designing for.

(Source: Mark Rolston via fastcodesign.com)

Self-assembly products – As this goes to print, Tesla has demonstrated its first fully autonomous self-driving car. It is becoming evident that VR and AI are set to dramatically change the landscape in the next few years. Inevitable change and growth is occurring exponentially and product/industrial designers will need to be ready to apply human-centred design to tomorrow's problems.

Designer-maker or Digital craft – Graduates are increasingly choosing 'portfolio careers' with a foundation in designing and making, deriving income from a variety of sources. Due to the proliferation of inexpensive production technologies, e.g. 3D printing and CNC routing, product designers can now do small runs of their own products, increasing output as need demands which makes it easier to contain costs. Marketing and sales opportunities are also increasing due to social networking.



Shoe design, Reid Douglas

WORK SETTINGS

As a industrial designer you have the potential to work for large or small companies across a variety of fields. Product design graduates can be found in consultancies (Blender, Formworks, PHD3, Procreate), manufacturing (Fisher & Paykel, Kathmandu), corporates (ASB) and public sector (Auckland Council, Auckland District Health Board, Auckland Transport).

Depending on your interests, you also have the potential to start your own business.

Many industrial design students choose to do freelance work, which has become easier with availability of 3D desktop printers for the home office. Freelancing involves working with different companies on select projects.

INDUSTRIAL DESIGN FIELDS

Product designers generally sit within one of three fields –

1. technology driven traditional industrial design
2. design thinking/service design/experience design
3. design maker/digital craft design

Technology driven traditional industrial design

The traditional pathway sees graduates develop solutions that integrate technological feasibility, desirability and commercial viability into mass-produced products. Technically focused industrial design roles exist at manufacturers like Fisher and Paykel Healthcare or Appliances, Methven, or with design consultancies like Blender, Formworks, or Procreate. Sometimes these graduates go on to develop their own products and become entrepreneurs in their own start-up companies. People working in this space would be employed in roles such as product designer, industrial designer or product design engineer.

Design maker or digital craft design approach

Design makers or digital craft focused industrial designers create fewer products or batch production quantities, rather than mass producing. The product is sustainable, higher priced and hand-made with low environmental and transportation costs. Designers sometimes set up their own businesses, selling products directly on-line through social media or via retailers. Sometimes product ideas, concepts or designs are licenced to manufacturers for a fee.

Design thinking/ experience design/user experience

Industrial designers follow a human centred approach to design, asking, 'where is the need?' Design thinking combines empathy, creativity and rationality.

They often design solutions to social needs and/or to improve user experience. For example, a sound-proof privacy screen to clip onto hospital beds to improve privacy for patients, or an integrated information system that combines all of Auckland's modes of transport, buses, trains and ferries onto one easy to understand ticketing, map, app and website.

Industrial designers work holistically to design not only the product, but the ecosystems for things. For example, the Apple iphone isn't a product in isolation but offers a full experience to the user through inclusion of itunes and apps. People working in this space are often called 'user experience (UX) designers' and work in design strategy teams within corporates such as banks, or in brand strategy teams within advertising or marketing companies like Ogilvy & Mather.

SKILLS AND KNOWLEDGE

- Ability to identify problems and find user centred solutions for products and services.
- Competent at following a design process that explores, challenges and responds creatively to identified problems
- Practical research experience
- Sense for aesthetics and form-giving
- Adept at producing prototypes quickly and to a brief
- Knowledgeable and experienced in freehand drawing, CAD software, industrial materials and processes, and manufacturing methods
- Results driven with strong planning/organisational skills
- A strong customer focus in order to design solutions
- A practical mind-set and solid understanding of business
- A sound knowledge of modern technology, but also can physically produce things.

PERSONAL QUALITIES

- Confident and articulate communicator.
- Ability to question, discuss, and probe client's needs.
- Independent and creative thinker.
- Demonstrates initiative, adaptability and design sense.

SALARY GUIDE

Pay range depends on size of company and calibre of clients.

	Salary
Industrial designer	$41,000 - $80,000 (median $55,000)
	(with experience) $85,000 - $110,000
Product design engineer	$54,000 - $75,000 (median $63,000)
UX designer	$46,000 - $99,000 (median $55,000)

Sources: *Payscale.com/ Hays Salary Guide 2016*

Salary range is indicative of the New Zealand job market at the time of publication (Jan 2017) and should only be used as a guideline.

FURTHER STUDY OPTIONS

Industrial design can be studied at postgraduate diploma, master's and PhD level and attracts students from other AUT schools, departments and disciplines, as well as industrial design graduates.

Research projects are often collaborative and interdisciplinary and include medical products, services and systems.

AUT research areas include sustainable design, smart furniture/IoT, public transport design, digital craft.

THE AUT ADVANTAGE

AUT has strong industrial design industry links to organisations including Auckland District Health Board, Auckland Transport, Fisher & Paykel, Kathmandu, Medicine Mondiale, Trade Aid, Zephyr Technologies, and Zespri.

Students have excellent access to 3D laboratories, the rapid prototyping laboratory and the Textiles and Design Laboratory which has 3D scanning capabilities.

Neerali Parbhu

Product Development Engineer, Hospital Care, Fisher & Paykel Healthcare

Bachelor of Design in Product Design

"I am a product development engineer working within the Respiratory & Acute Care division at Fisher & Paykel Healthcare. I have been in this role for about a year and a half.

I work on the neonatal application of our product, which I thoroughly enjoy as I love working with children. I get to spend a lot of time in the hospital with nurses using our product to understand their experience with it, as well as time in our workshops working alongside engineers developing, prototyping, testing and refining our products.

As a product development engineer I collaborate with a diverse group of people who have different expertise, such as process engineering, clinical research and intellectual property. Since working here, I have had many opportunities to develop my skills through ongoing training, so I am still learning every day. Although I'm a graduate, I also get leadership opportunities which is great. And if I feel I am struggling I know I will always be supported by my team.

The biggest challenge has been learning how best to apply the knowledge gained through my degree in product design to this role in engineering. A key element in my degree was improving the user experience of products through human centred design solutions. This extremely valuable methodology I feed into my work every day."

EMPLOYER COMMENT

"A graduate product development engineer needs to have initiative and a positive attitude, be goal driven and always be looking to find engineering design solutions in a team environment. Neerali is passionate about improving patient care in the neonatal and paediatric populations that we are designing respiratory products for.

When looking for work you need to be passionate about what you do both in academic studies and extracurricular activities. You need excellent communication skills both verbal and written and have the ability to work within a team environment. Work experience – whether in your chosen field or not – is beneficial.

The industry can be competitive so when you apply for graduate opportunities it is important to show you are passionate about your chosen industry. You need to demonstrate your creative and practical problem solving skills in your CV through your hobbies and university projects."

Kiel McCool
Product Development Manager, Hospital Care, Fisher & Paykel Healthcare.

USEFUL WEBSITES

Fast Company
www.fastcodesign.com

The Designers Institute NZ
www.designersinstitute.nz

Service Design Network
www.service-design-network.org

FURTHER INFORMATION

For further information about industrial design and the Bachelor of Design, visit our website www.aut.ac.nz/art-design

FUTURE STUDENTS

Contact the Future Student Advisory team for more information: www.aut.ac.nz/enquire
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CURRENT AUT STUDENTS

Contact the Student Hub Advisors team for more information:
0800 AUT UNI (0800 288 864)
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EMPLOYABILITY & CAREERS

For other Future Career Sheets visit:
www.aut.ac.nz/careersheets
For employability and career support, AUT students can book an appointment through
https://elab.aut.ac.nz/

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The information contained in this career sheet is correct at time of printing, August 2019.