Future Learn

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Certificate of Achievement

Ijaz Baber Ahmad

has completed the following course:

PRINCIPLES OF ENGINEERING
KING'S COLLEGE LONDON

This online course explored engineering skills, processes, design thinking and teamwork, providing a solid foundation for further study and career development.

4 weeks, 4 hours per week

Mischa Dohler
Chair Professor of Wireless Communications
King's College London

Claire Lucas
Professor of Engineering Teaching and Learning
King's College London

KING'S College LONDON

The person named on this certificate has completed the activities in the attached transcript. For more information about Certificates of Achievement and the effort required to become eligible, visit futurelearn.com/proof-of-learning/certificate-of-achievement.

This certificate represents proof of learning. It is not a formal qualification, degree, or part of a degree.

TRANSCRIPT

Ijaz Baber Ahmad

has completed the following course:

PRINCIPLES OF ENGINEERING
KING'S COLLEGE LONDON

This course investigated the key processes engineers use to bring a design from inspiration to creation. It explored both hard and soft skills needed by budding engineers, including Design Thinking, teamwork, and cutting edge technologies such as artificial intelligence and the blockchain. Throughout, students were encouraged to put the ideas into practice by creating their own designs, pursuing their own curiosity, and working with others to identify problems engineering might solve.

STUDY REQUIREMENT
4 weeks, 4 hours per week

LEARNING OUTCOMES
- Identify some ancient and modern engineering wonders and explain what makes them stand out
- Explain some of the broad principles of engineering and show how they apply to things we use every day
- Apply design thinking systematically to your own ideas and inventions
- Develop, create and test low-fidelity prototypes
- Evaluate an existing design and suggest ideas for improvement
- Explain why engineering is about people and solving problems
- Explore some frontier developments such as AI, and analyse their advantages and risks

SYLLABUS

Week 1
In Week 1, you will get an eye for engineering. You will discover

- The different branches of engineering
- Why soft skills and people are at the heart of the field
- How to design your own project using skills found in many different types of engineering

Week 2
This week is all about the application of engineering to solving problems. By the end of the week, you will know

- How to identify problems that engineering can solve
- How to discover what people really need and design an engineering brief
- How to create a prototype and find out where it needs to be improved

Week 3
Knowledge of materials and how they behave is essential for engineers. During this week you will

- Gain a detailed understanding of how one recent innovation works - what keeps a drone in the air
- Hear from worldwide experts about robots, smart materials, and why origami can be helpful
- Discuss where engineering is taking us, and what humans must do to ensure it stays safe

Week 4
Professor Mischa Dohler's speciality is telecoms connectivity. This week is devoted to

- The miracle of what happens in the background when we click a link or make a mobile call
- Discovering how a huge data centre is made and why it can help us
- Thinking about the possibilities, and the dangers, presented by artificial intelligence and quantum technologies