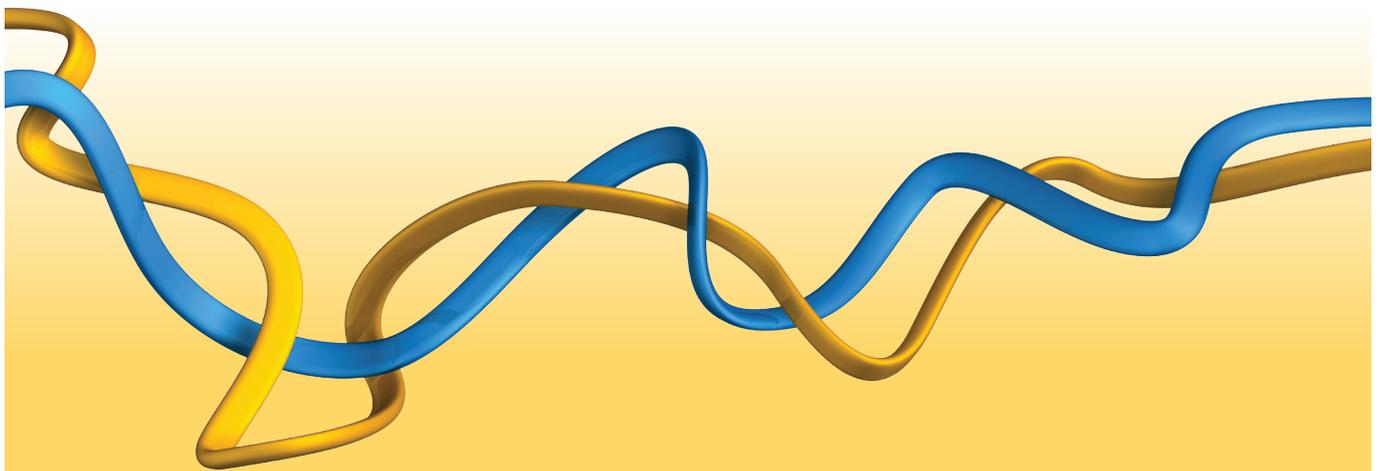


## Biomedical engineering careers series

*practical engineering at the front line of the health service*



**Marium Naeem**

**Clinical scientist**

Marium Naeem proves that determination and keenness to learn about new things are key skills to have in developing a career in medical physics, specialising in radiotherapy physics.

## Marium Naeem

Naeem is working as a clinical scientist at the National Health Service Trust that runs two of London's biggest teaching hospitals, Guy's and St Thomas's. She is part of a team that ensures that the radiotherapy equipment used to treat cancer patients gives out the correct doses of radiation. She works alongside engineers, consultants, surgeons and the treatment staff to ensure the smooth running of a life-changing service in some of the UK's busiest hospitals.

It's a challenging and demanding role and Naeem is very enthusiastic about it. But her career path is not one she might have imagined in school. "Most of what I'm involved with on a day-to-day basis is physics, and physics was the gap in the middle that I didn't really do when I was at school," she says. "I was really interested in biology because you could apply it to everyday life and I also liked maths with the idea that if you knew the rules you could work out the solutions to the problems."

So when Naeem picked an undergraduate degree course in biomedical engineering and applied physics at City University in London, there was a lot of new material for her to absorb, and she enjoyed the challenge. What appealed also, at the end of the course, was the idea of working in a hospital, and she applied for the NHS Clinical Scientist Training Scheme - but then failed to be picked.

This may have been a setback to Naeem, but it wasn't a surprise: "There's about 70 places and they have

something like 1,500 applicants," she says. And the determination kicked in. The NHS scheme involves acquiring a masters' degree, so Naeem signed up for a masters anyway in medical physics and engineering. That meant when she applied for a second time to the NHS scheme successfully, she already had her masters, and knew that her specialisation in physics made her application stand out.

"I did my training in the North London consortium of hospitals and they give you on the job training in different aspects. I picked radiotherapy, nuclear medicine, which is the diagnostic side, and non-ionising radiation. There are a number of modalities in medical physics."

The training goes on in her current job and includes qualification as a state registered clinical scientist. "It's a regulated profession," she says, "and it's important for patients and the other professionals we work with to know that our competences are audited and kept up to date."

It's important too in her daily work. Much of Naeem's work is quality assurance: ensuring that current equipment is delivering radiation in appropriate doses and carrying out routine checks as well as troubleshooting. She also introduces and proves new systems, and liaises with the other professionals who install, maintain and use the systems.

"I'm proof that physics doesn't have to come naturally to you to have a really good and fascinating career in this area," she says. "It's tough to get into but if you persist - well, I did it."

