



BEING A CHRISTIAN IN ENGINEERING

CHRISTIANS IN SCIENCE

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Studying Engineering as a Christian

Engineering is an excellent subject to study as a Christian, but it is not without its challenges. Perhaps the greatest of these is the apparent irrelevance of religious faith to the physical world – a myth perpetuated by atheists and by some Christians who emphasise the division between the body and the soul, the physical and the spiritual. This leaflet aims to encourage you in your calling as an engineer and provide some advice on dealing with common challenges associated with being a Christian in engineering.

About the Authors

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Dr Mike Clifford, is an Associate Professor in the Faculty of Engineering at the University of Nottingham and a volunteer with Tearfund, a Christian relief and development charity. His research interests are in combustion, biomass briquetting, cook stove design and other appropriate technologies. In 2009, he was voted “engineering lecturer of the year” by the Higher Education Academy’s Engineering Subject Centre for his innovative teaching methods involving costume, drama, poetry and storytelling.

Engineering as a Calling.

As the former US President and mining engineer Herbert Hoover wrote, “[Engineering] is a great profession. There is the fascination of watching a figment of the imagination emerge through the aid of science to a plan on paper. Then it moves to realization in stone or metal or energy. Then it brings jobs and homes... Then it elevates the standards of living and adds to the comforts of life. That is the engineer’s high privilege.”

Hoover’s quote provides a good definition of what an engineer is, but the Christian engineer’s highest priority and primary motivation is to glorify God. A Christian engineer is someone who uses their God given gifts of specialist technical knowledge and practical abilities to

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transform creation into an image of what the new creation will be like, so that God is glorified and society is improved (Matt 5:16, Jeremiah 29:7).

Many of the technological challenges described in Scripture are on very large scales: Noah’s ark, building the temple, reconstruction of the walls of Jerusalem and so on. However, in all these cases the emphasis was on the heart of the individual. Local skill and labour was used, particularly in rebuilding the walls of Jerusalem (Nehemiah 3). In the construction of the tabernacle, specific tasks were undertaken by Spirit-filled craftsmen (Exodus 31:1-11). The status of craftsmen depended entirely on their God-given talents and to what use they put them to. Conversely, craftsmen who make idols are described as “nothing but men” who “will be brought down to terror and infamy.” (Isaiah 44:11). When Paul visited Athens (Acts 17:16-34) it was among the most advanced cities at the time. Even today the ruins remain a testament to the Athenians’ skill. In his commentary on Acts, John Stott says that Paul “might have been spellbound by the sheer splendour of the city’s architecture, history and wisdom.” However Paul saw past their works to their hearts and recognised that they did not glorify God.

Paul placed particular emphasis and value on working with the hands (1 Cor 4:12, Eph 4:28, 1 Thes 4:11) and demonstrated his flexibility in supporting his preaching ministry with practical work including tent making as the need arose.

Engineering and Christianity - Common Challenges

In the following subsections we discuss some of the common challenges and issues facing Christian engineers.

Is Faith Irrelevant to an Engineer?

Engineers are practical people. As such, it is tempting for engineers to concentrate entirely on physical realities and physical needs such as building bridges, designing aeroplanes, electronic equipment and so on, rather than to ponder philosophical or religious questions. Undergraduate engineers are not usually portrayed as being hostile to religious belief or as people with strong moral convictions, but as apathetic towards religion. Whereas some religions ignore or downplay the importance of the physical, the Christian faith is most fully expressed by a holistic understanding of the relationship between body and soul and should address physical and spiritual needs equally. Faith without deeds is dead (James 2:26b).

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But what of deeds without faith – a category which could incorporate much of modern engineering? In 1 Corinthians 13: 1-13, we read that even great works of charity are meaningless without Faith, Hope and Love. The greatest technological engineering project will not succeed without a complete appreciation of the social purpose and the spiritual dimension. The Tower of Babel (Genesis 11) gives a strong case study of the folly of embarking on a civil engineering project with cutting-edge technologies

whilst ignoring God “Come, let us build ourselves a city, with a tower that reaches to the heavens, so that we may make a name for ourselves.” (Genesis 11:4b).

Is Engineering Ethically Neutral?

In recent years, professional bodies such as the Engineering Council have begun to appreciate the need to incorporate and embed ethics, sustainability and “the global dimension” into undergraduate curricula. Often these terms are poorly defined; hence, many engineers are ill-equipped to address such non-physical concepts. The Christian engineer has a clear advantage and moral framework to contribute to discussions on these topics. Technology is often presented as morally neutral. For instance, J. Robert Oppenheimer is quoted as saying, “When you see something that is technically sweet, you go ahead and do it and you argue about what to do about it only after you have had your technical success. That is the way it was with the atomic bomb.” However, historical events such as the nuclear attacks on Nagasaki and Hiroshima and the threat of a full-scale nuclear war have led many to question Oppenheimer’s view that technology can or should exist in a moral vacuum.

The Choice of Where to Use Engineering – Trivial Gadgets vs Meeting Essential Needs

A key part of being an engineer is being able to solve problems. An engineer observes a need in society and using specialist knowledge creates an artefact to fulfil that need, thus improving the quality of life. However in the West many of the expressed needs of the people are not really needs, but desires. Today it seems most people cannot function without the latest mobile phone, but go back twenty years and we coped without many modern technologies. Consider Maslow’s hierarchy or pyramid of needs, where basic requirements for survival are

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at the bottom and as we move up the pyramid the needs are more for convenience, comfort and to give purpose to life. While some countries are still trying to provide solutions to meet basic survival needs, in the West, for the most part, we are much more concerned with designing the next clever gadget to make our lives that tiny bit easier.

A more worrying thought is that some engineering has become so commercialised that the main purpose it fulfils is to make money through consumerism. We are becoming technology junkies; we do not buy the latest product out of necessity any more, but out of greed. Organisations such as Engineers Against Poverty, Practical Action and Engineers Without Borders UK, seek to reclaim engineering as an essential means to meet physical needs for survival for the majority of the world who are in desperate need of sanitation, shelter and food.

Military Engineering – Is it Right for a Christian Engineer to Design Weapons?

Engineering has always had close associations with the military. Indeed, in 1818, the Institute of Civil Engineers was formed to distinguish advancements in mechanical science, power production, the construction of roads, bridges, aqueducts, canals, and so on, from engineering used for military purposes. Although engineers are seldom at the front line, the task of designing and manufacturing weapons, military aircraft, body armour, chemical protective suits, land mines, missile guidance systems, and so on falls to the engineer. Many engineers work for the military, either directly or indirectly *via* firms of consultants, and so undergraduates entering the profession need to prayerfully consider whether it is right for them to be involved in military engineering.

There are many “Christian” responses to the call to arms. These range from complete acquiescence to fight for one’s country and government, whatever the situation, since slaves are to obey their masters (Colossians 3:22), to those who fight “just” wars to remove evil dictators, defend the weak and bring justice to the world (Psalm 82:3), to complete pacifism, on the basis that murder is explicitly prohibited in the Ten Commandments (Exodus 20:13). Some Christians adopt a selective approach to these issues, for example, deciding that the manufacture of land mines, which result in many civilian casualties long after a war has ended, may be off-limits, but designing a more precise missile guidance system, which could reduce the risk to civilians by efficiently targeting “legitimate” objectives, may be compatible with their faith.

Stewardship and Sustainability vs Consumerism

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Much current engineering practice is unsustainable; for instance, in the UK we are consuming raw materials such as steel, cement and fossil fuels at unprecedented rates. Christian stewardship has been defined by Charles Bugg as: *“Utilising and managing all resources God provides for the glory of God and the betterment of His creation.”*

The drive for efficiency is at the heart of much of engineering, and sits comfortably with Christian stewardship of land, natural resources and talents. However, there is also pressure on the engineer to design for failure, so that products will need to be purchased on a continual basis by consumers, rather than on a once-for-all basis. The disposable culture in which we live presents a challenge for Christian engineers.

Mike Clifford and Glyn Spencer

FURTHER INFORMATION

Articles:

Clifford, M. J., “*Engineering in the 21st Century - A Trivial Pursuit?*” (2007)
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Clifford, M. J., “*Appropriate Technology: the Poetry of Science*”, *Science and Christian Belief* 17:1, pages 71-81, 2005.

Books:

Wolters, A. M., “*Creation Regained: Biblical Basics for a Reformational Worldview*” (2005) ISBN 978-0802829696

Schumacher, E. F., “*Small Is Beautiful: A Study of Economics as if People Mattered*” (2011) ISBN 978-0099225614

Stibbe, A. (ed.), “*The Handbook of Sustainability Literacy*” (2009) ISBN 978-1900322607

Useful Websites:

Christians in Science: www.cis.org.uk

ASA, CiS’s US sister organisation: www.asa3.org

Be Thinking: www.bethinking.org/science-christianity/

The Faraday Institute: www.faraday-institute.org

Test of Faith: www.testoffaith.com

Engineers Against Poverty: www.engineersagainstopoverty.org/

Engineers Without Borders UK: www.ewb-uk.org/

Christian Engineers in Development: www.ced.org.uk/

Christians in Engineering: www.transformworkuk.org/Groups/113631/

Transform_Work_UK/Workgroup_Websites/CIE/CIE.aspx

Practical Action: www.practicalaction.org

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