

Make a difference with engineering and the built environment

BUILDING

Durban University of Technology's Building instructional programme is aimed at providing a higher-level general education in construction management or quantity surveying. A student who completes the National Diploma is eligible for admission to the B Tech Degree in Construction Management or the B Tech Degree in Quantity Surveying which can be done on a full-time or part-time basis.

Career opportunities

Career opportunities exist in construction companies, private professional practices, banks, and government departments etc. in the areas of quantity surveying, construction and construction project management.

Location

Steve Biko Campus

PULP AND PAPER TECHNOLOGY

Pulp and paper technology is a specialist field of chemical engineering which involves the study of the processes required for the conversion of raw materials such as wood, into pulp and paper products.

Pulp and paper products are indispensable in our daily lives; products such as newspapers, toilet tissue, books, boxes, etc. are an essential component of modern civilisation and it is impossible to imagine life without them.

A pulp and paper technologist must have a wide variety of talents. He/she must understand how and why a given process works, in order to set up and operate equipment in the process. A pulp and paper technologist is a creative problem solver, who applies scientific knowledge and technical expertise to ensure that the process runs in the most cost-effective and efficient way, and with due regard to safety and the environment.

A person who wants to embark on a career in pulp and paper technology must have a basic knowledge of chemistry and physics, and an aptitude for solving problems logically.

DUT's National Diploma in Pulp and Paper Technology aims at producing a person who fully understands Pulp and papermaking processes, and who is competent to work in any production process in a



Hard at work in a state-of-the-art facility.

pulp or paper mill. Successful graduates would find employment as process controllers and supervisors; this would obviously depend on the capabilities and performance of the individual.

The National Diploma is a three year programme consisting of 24 months of theoretical tuition and 12 months of appropriate industrial training.

On completion of the National Diploma the graduate may enrol for the Bachelors degree in Technology: Pulp and Paper. This programme is designed to prepare students for positions in technical management or as process technologists. The degree is presently offered on a two-year part-time basis.

Career opportunities

Process controllers, supervisors, pulp and paper technologist.

Location

Steve Biko Campus

SURVEYING

Surveying technicians are involved in planning and construction within the civil/building industry. Surveying is the means of representing the layout of the land accurately on maps or plans, and to indicate the exact position of any structure or other man-made or natural object on, above or below the ground. The role played by surveying in modern development should not be underestimated. It forms a vital cog in the planning, provision and maintenance of all forms of construction and development. Without surveying,

other allied fields such as architecture, civil engineering, town planning, building and construction would not have the platform on which to plan their designs and correctly position their structures.

A surveyor normally takes measurements in the field and after computation in the office, draws up the finished product, ie the map or plan.

Surveying, therefore, has a good mix of field and office work. The beauty of surveying is the job satisfaction associated with it. The surveyor gathers relevant data and transforms this information into a plan or map for records or as a basis on which others can plan future development.

There are six branches of surveying:

1. Geodetic surveying involves surveys of great accuracy, used to establish the dimension and shape of the planet Earth or to establish a national network of control points.
2. Cadastral surveying is carried out by professional land surveyors to determine the accurate position of property boundaries for registration in a Deeds Registry.
3. Hydrographic surveying is the mapping of the seabed in coastal waters and harbours, or the determination of volumes with respect to dams.
4. Mine surveying involves the survey of service and underground workings in the mining industry.
5. Topographical surveying is done for the production of maps and plans

showing all physical features, natural or man-made, on the ground.

6. Engineering surveying includes surveys for the setting out and maintenance of all building and engineering structures as well as the preparation of plans for such objects.

The technician surveyor is mainly concerned with topographical and engineering surveying but also receives a sound grounding in other survey techniques so that he is in a position to participate in other fields of surveying.

The topographical surveyor has a vital role to play in the production of maps of small areas. The advent of total stations and electronic field books has dramatically improved the production ability of detail surveys by the surveyor. Photogrammetry is often used to provide detailed maps of larger areas, where the surveyor is required to supply the necessary ground control for tying the photography down to the ground. The surveyor then uses modern photogrammetric equipment to produce or prepare detailed topographical maps.

The engineering surveyor prepares the basic plan for use in all development projects. An engineer will then design a scheme based on this plan, whereupon the surveyor sets out the work on the ground and controls the position of the structure during construction, monitoring progress to ensure that it remains within the layout he has specified.

The programme offered at the Durban University of Technology provides theoretical and practical training in both topographical and engineering surveying. This is supplemented by practical training during Surveying Practice II in year two.

The surveyor should have an aptitude for mathematics/arithmetic and should be able to produce accurate and neat work. It is a very responsible type of work and he is expected to work accurately and check his work continuously. Most of his calculations are computer-oriented.

The working conditions in surveying provide satisfying blend of field and office work which appeals to a person who does not want to be confined to an office for eight hours a

day. In the short and long term, there will be a great demand for technician surveyors, this will obviously depend on the economic situation of the country. The position of the technician surveyor has been recently enhanced by legislation effecting reservation of work in his field.

Career opportunities

Surveying technician, surveyor, GIS and photogram meter. Employment opportunities within the private sector are: land surveying firms, technician surveying firms, mining concerns, hydrographic companies, engineering surveying consultants and civil engineering contractors. Opportunities also exist in the public sector, with municipalities, quasi-government and government departments such as Eskom, Transnet, Provincial Roads Branch, Water Affairs, and the Province of KwaZulu-Natal.

Location

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TOWN AND REGIONAL PLANNING

The work of a Town and Regional Planning Technician is of a diverse nature and embraces inter alia: surveying tasks, planning surveys, the analysis and presentation of data by means of maps, graphs, diagrams and sketches, assistance in the preparation of town planning schemes and the construction of scale models for proposed schemes, and the use of technologies such as Computer Aided Draughting (CAD) and Geographic Information Systems (GIS).

There is also an increasing demand for planners to develop and use community participation models and methods in their everyday work. He or she is employed by private sector, planning firms, local provincial authorities and the civil service, and service organisations.

Career opportunities
Planning technician, surveyor, planning and analysis.

Location

Steve Biko Campus

Other courses include:

- ENGINEERING: COMPUTER SYSTEMS
- ENGINEERING: ELECTRICAL (HEAVY CURRENT)
- ENGINEERING: INDUSTRIAL