



Fact Sheet

Computer Aided draughting
and design (CAD1)



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FACULTY OF DESIGN

Vocational Studies: 2024 Fact Sheet

Programme Title	SAQA ID	Credits	NQF
FET Certificate: Computer Aided Drawing Office Practice (CAD)	66071	131	4

***Registrations strictly close on 31 May for 2024 & 2025 intakes.
*No late registrations will be accepted.**

Programme description

This Further Education and Training Certificate (FETC) is intended to serve the architectural, engineering, and construction industries by providing skilled draughtspersons who can produce design drawings that address the need to move from traditional manual drafting to Computer Aided Drawing and Draughting. Portability across other National Qualifications in Engineering and Draughting is therefore ensured.

The FETC in Computer-Aided Drawing Office Practice will produce knowledgeable and skilled Computer-Aided Draughtspersons who are able to contribute to improved productivity and efficiency within the draughting industry. It will provide the means for current learners in the Computer-Aided Drawing field to receive recognition for prior learning and to upgrade their skills and knowledge base. The qualification is structured for learners to acquire a set of core competencies to give a broad understanding of Computer Aided Drawing.

Syllabus

The following modules are presented in CAD 1:

- ▶ DT411: Design Theory 1
- ▶ SW411: Studio Work 1A
- ▶ CA411: Computer Applications 1A
- ▶ FDM411: Fundamentals A
- ▶ DOP412: Drawing Office Practice 1
- ▶ CA412: Computer Applications 1B
- ▶ SW412: Studio Work 1B
- ▶ CM412: Construction Materials 1

Design Theory 1

The purpose of this module is to introduce students to theoretical constructs that underpin the process of design in an architectural and mechanical context. Firstly, it encourages students to engage with the theory that informs the practice of Design in a design process setting, secondly, it informs students about key historical developments in architecture, and thirdly it informs students about the basic underpinning elements in Mechanical Design practices.

Studio Work 1A

In Studio Works 1A, the students will be introduced to different drawing types in the draughting industry where students engage with technical illustration and presentation drawing. Students are required to analyse, describe and represent the properties of geometric shapes, solve real and

abstract problems, select and use co-ordinate or schematic systems to represent and solve problems.

Computer Applications 1A

The aim of this module is to develop the students' ability to effectively apply a computer program to design and draft plans of an architectural and mechanical nature. During this module, students are required to complete several class activities as well as formative assessments. The completion of these exercises and formative assessments are instrumental to develop knowledge and skills required to complete drawings on a computer aided draughting station.

Fundamentals 1

The ability to effectively communicate your design ideas in both verbal and written modes are as important as the design solution itself. This module will assist in the development of students' ability to construct and deliver verbal and written presentations.

The purpose of this module is three-fold:

- ▶ It assists your ability to develop original concepts
- ▶ It develops skills in both verbal and written communication
- ▶ It develops the ability to plan and construct effective communication.

During this module, students are required to complete several class exercises as well as formative assessments. The completion of these exercises and formative assessments are instrumental to develop the ability to construct and present information in a confident manner.

Drawing Office Practice 1

During this module, students engage with activities, processes and industry standards associated with drawing office practice. The module is presented as a mix of theory and practical application and learners are required to complete a variety of assessments that will assist in breeding knowledge and understanding of standard operations in a drawing office.

This module is divided into four learning units:

- ▶ Drawing office standards
- ▶ Health and safety
- ▶ Surveying
- ▶ Site measuring

Computer Applications 1B

This module aims to develop the students' skill in developing three dimensional representations based on two-dimensional data.

During this module, students will predominantly engage with two software packages:

- ▶ Autodesk Inventor
- ▶ Autodesk Revit

Studio Work 1B

This module consists of two predominant learning units: Mechanical draughting and Building Draughting. The mechanical draughting learning unit is dedicated to describing cams and cam profiles in accordance with standard industry practice. You will also learn to draw cam profiles by constructing a displacement diagram. A cam is a machine element that generally rotates at a uniform speed to produce a controlled up-and-down movement. The cam makes direct contact with another machine element called the follower and gives it either a reciprocating motion or an oscillating motion. The follower is thus raised and lowered as the cam revolves. Cams are usually fixed or mounted on rotating shafts, although they may also remain stationary with the follower moving about them.

The building draughting learning unit allows students to gain an understanding of national building regulations, as contained in the South African National Standards (SANS) 10400 Code for Building Practice, in terms of its provisions that impact building (architectural) draughting. We will discuss the functions of people who are involved in building according to their job descriptions. Also learn how all preparation, submission, and approval of plans and specifications of buildings, including the approval of amendments or alterations to plans and specifications of buildings during the erection thereof, must conform and be in accordance with the national building regulations, as set out in the SANS 10400 Code of Practice the application of the National Building Regulations of 1990. In certain cases, commentary on the application of the deemed-to-satisfy rules and on standardisation of the application of the regulations has been included.

Construction Materials 1

The module aims to imprint a fundamental understanding of systems, processes, and materials utilized in the building trade. Through theoretical engagement and practical application, students are introduced to the application of materials in the building trade such as wood, masonry, concrete, and glass. Each learning unit deals with specific building material and provides information pertaining to characteristics, application, advantages, and disadvantages. Basic knowledge of building material and construction processes serves to inform practical application in the draughting field.

Admission requirements

- ▶ National Senior Certificate (Grade 12) Mathematics/ Mathematics Literacy.

Mode of study | Duration

Day Classes (full time): 12 Months (5 days/week)

Evening Classes (part time): 12 Months, (2 x evening classes per week, 18:00 - 21:00, Mon & Wed or Tues & Thurs as well as 2 x Saturday classes per month)

Teaching and Learning Methodology

A blended teaching and Learning methodology is followed. All theory classes will be conducted Virtually through Lecturer-led interactive teaching on a national basis. A flipped classroom approach will be followed in some sessions. This means that students are introduced to content at home and practice working through it during the applicable session, either the virtual theory sessions or the practical sessions.

All students will be allocated to lecturers that are not necessarily based at the campus of enrollment but who will always be subject matter experts. CTU implements a national academic standard and all lecturers have been appointed on the same criteria and use the same academic content in the teaching and learning process. The adherence to a national academic standard is monitored by the Academic Management team at the Head office. Therefore, all students will continue to receive the same quality of education.

Students will attend some practical, group, and research sessions on campus or virtually. The same work and time will be spent on both methods, face to face and VLIT, with students. Extra practical sessions can be booked at the campus with the Campus Operational Manager. Students will be expected to attend practical, group, and research classes on campus a minimum of two days a week, as per the campus schedule.

Textbooks and e-guides

A list of prescribed textbooks will be provided in your e-guides. Students will receive an electronic version of the academic guides (e-guides) for this programme on the Teaching and Learning platform. Access is available to an electronic library of textbooks on O'Reilly, and it is included in the fees. Refer to the [Device Specifications and Stationery List](#) document for more information.

Technology hardware, software and data requirements

- ▶ A laptop preferably Core I5, RAM 8GB and above, 64 Bit Operating System x64 based processes and
- ▶ A minimum of 20GB data per month (uncapped recommended)

For additional information please consult the CTU Bring your own device guide. [Device Specifications and Stationery List](#)

Student Support

Student support sessions with the facilitator will also take place on a one-on-one basis either virtually or physically at the campus per appointment or per the academic schedule.

Certification

On successful completion and verification by the Quality Assurance Partner (QAP) of the programme, the student will receive a Further Education and Training Certificate: Computer-Aided Drawing Office Practice issued by the QAP - Construction Education & Training Authority (CETA). **Note that the process of issuing a Certificate might take up to three years to be finalised.**

International Certifications

- ▶ Autodesk Certified User AutoCAD User

Optional Exams: (*for student's own account)

- ▶ Autodesk Certified User Revit Architecture
- ▶ Autodesk Certified User Inventor

Further studies

Students may pursue further studies at CTU by enrolling in Computer Aided Draughting and Design 2.

Career fields

Students can be employed in the following career fields:

- ▶ Architectural / Civil Draughtsman
- ▶ Mechanical Draughtsman
- ▶ Building & Site Surveyor
- ▶ CAD Operator
- ▶ Architectural Detailer
- ▶ Mechanical Detailer
- ▶ Structural Steel Detailer
- ▶ Visual 3D Modeller and more...

Pricing*

Programme	Admin fee	Registration fee	Tuition fee
CAD 1	R2 500	R6 000	R66 766

* Excludes external fees and identified textbooks if applicable.

Payment

Visit our website to view the payment method.

Payment Methods.

APPLY for Student Loan HERE!

Additional costs

Students must make provision for additional items such as textbooks, stationery, supplementary examinations, research costs and printing, field trips etc.

Disclaimer

The information contained in this fact sheet is accurate at the time of printing. However, factors beyond the control of CTU Training Solutions (such as environmental, regulatory or technical changes) may cause the contents of this fact sheet or of the programme to change. In the event of any such change, CTU will notify current students. All possible measures will be taken to minimise inconvenience to students.

I (Name of student):..... hereby acknowledge that I understand the information stated in this document and fully comprehend the specifics explained above pertaining to this qualification.

Student signature:.....

Signature of legal guardian:.....

Name of legal guardian:.....

Consultant signature:.....

Name of sales consultant:.....

Date:.....

* Please note the original signed copy should be kept on the student record file.

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