

## From the Principal's desk

### Take your next step now!

Follow through on your decision to enhance your life and your future prospects by enrolling in one of INTEC's Draughting courses today!



### Why study with us?

- Quality study material designed specifically for home study.
- The freedom to study at YOUR own pace, where and when it suits YOU.
- The widest range of courses for today's world.
- Free consultations with INTEC's career counselling and development specialists.
- Free study choice advice from INTEC's Student Consultants.
- The convenience of online enrolment, contact and advice.
- Affordable, easy payment options.
- Ongoing study support and attention from qualified tutors.

### Umalusi Accreditation

INTEC College (Pty) Ltd has been awarded provisional accreditation by Umalusi. Umalusi is the Council for Quality Assurance in General and Further Education and Training in South Africa - see [www.umalusi.org.za](http://www.umalusi.org.za)  
Umalusi Provisional Accreditation No.: FET 00037 PA.

### DHET Registration

INTEC College (Pty) Ltd has been granted provisional registration by the Department of Higher Education and Training as a private FET College, until 31 December 2014.  
Provisional registration No. 2008/FE07/025 - see [www.dhet.gov.za](http://www.dhet.gov.za). For further information please refer to our website: [www.intec.edu.za](http://www.intec.edu.za)

INTEC College (Pty) Ltd is committed to meeting legislative requirements regarding accreditation and registration of private education and training providers in South Africa.

Wishing you every success in your studies and your future!

*Phillip Slatter*

Phillip Slatter  
INTEC College Principal



go to: [www.intec.edu.za](http://www.intec.edu.za) or email: [info@intec.edu.za](mailto:info@intec.edu.za)

### Call a Student Consultant:

HEAD OFFICE	Tel: (+27) 21 417 6700	Fax: (+27) 21 419 6721
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WITBANK	Tel: (+27) 13 692 5400	Fax: (+27) 86 557 3505
NELSPRUIT	Tel: (+27) 13 752 2427	Fax: (+27) 13 752 6184
ERMELO	Tel: (+27) 17 811 2102	Fax: (+27) 17 811 2105
CAPE TOWN	Tel: (+27) 21 426 0626	Fax: (+27) 21 426 0771
PORT ELIZABETH	Tel: (+27) 41 585 0777	Fax: (+27) 86 262 1089
DURBAN	Tel: (+27) 31 374 9700	Fax: (+27) 31 301 8184
PHOENIX	OPENING SOON	
PIETERMARITZBURG	Tel: (+27) 33 345 1665	Fax: (+27) 33 345 1055
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ESTCOURT	Tel: (+27) 36 352 5083	Fax: (+27) 36 352 5867
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NATIONAL CALL CENTRE	Tel: 0800 012 311	Fax: 0860 103 242

INTEC College (PTY) LTD FET 00037 PA is a member of both the National Association of Distance Education Organisations in South Africa (NADEOSA) and the Association of Private Providers of Education, Training and Development (APPETD).

INTEC is a Registered Credit Provider: NCRCP 2325

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# TECHNICAL SCHOOL

## Draughting



Build your future the INTEC way

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## Programme Types offered at INTEC College

<b>NQF</b>	<b>National Qualifications</b> are credit-bearing qualifications registered on the NQF (National Qualifications Framework) and accredited by a Quality Assurance Body, such as a SETA (Sector Education and Training Authority). A skills programme is an accredited component of a national qualification.
<b>Agent Programme</b>	<b>Agent Programmes</b> are programmes for which INTEC offers tuition, but where INTEC does not issue the final certificate. The Agent body issues the final certificate and manages the final examinations.
<b>INTEC Programme</b>	<b>INTEC Programmes</b> are INTEC's own programmes that are not linked to the NQF and are not credit-bearing. However, they are in high demand and carry the approval of the INTEC Academic Board. INTEC Programmes fall into FIVE categories:
<b>Career Programme</b>	• <b>INTEC Career Programmes</b> are INTEC's own programmes that are designed to teach you the skills and knowledge to succeed in a particular career.
<b>Career Booster</b>	• <b>INTEC Career Booster courses</b> are continuous professional development (CPD) short courses that help you add to your current professional knowledge in a particular field, and hence boost your abilities within your career.
<b>Career Starter</b>	• <b>INTEC Career Starter courses</b> are short courses that introduce you to a particular field or career; and that offer you the opportunity to explore an interest or a skills set without having to enrol on a full programme.
<b>Job Creator</b>	• <b>INTEC Job Creator courses</b> are designed to refine your skills in a particular field of interest; to teach you how to make a living from a particular skill, interest or hobby, and to help you start your own business.
<b>Self Enrichment</b>	• <b>INTEC Self-Enrichment courses</b> are offered for self-enrichment purposes. They will add value to your experience of life in a particular chosen field of interest.

# Draughting Endorsement

INTEC College offers you Draughting training that is approved by the South African Institute of Draughting (SAID) and is fully endorsed by the International Academy of Draughting – recognised leaders in the Draughting field.

INTEC College has enhanced and adapted the learning material to suit distance learning.

## What is the South African Institute of Draughting (SAID)?

The SAID is a professional body that was established in 1953, with the objective of improving the academic and technical qualifications of draughtspersons.

## Why register with INTEC and the SAID?

Registering with INTEC and a recognised body such as the SAID will assist you in today's extremely competitive employment market. More and more employers are giving preference to members of the SAID. Members of the public may also contact the SAID to check registration of draughtspersons. This has become even more important for draughtspersons with the new statutory requirements of the Engineering Council of SA (ECSA) and the SA Council of the Architectural Profession (SACAP).

## SABS Code of Practice

### SABS Code of Drawing Practice



SABS Code of Practice is the standard for draughtspersons in South Africa, based on international drawing standards. Adherence to these standards will ensure that you'll be able to effectively communicate to any other person within the draughting and construction fields.

# Why Should Students Join the SA Institute of Draughting?



# South African Council for the Architectural Profession (SACAP)

- SAID is a professional, multi-disciplinary institute representing all disciplines of draughting.
- SAID is the only institute in South Africa that is recognised by both the architectural and engineering statutory bodies, which control all aspects of the architectural and engineering professions.
- SAID is recognised as a Voluntary Association by the SA Council for the Architectural Profession (SACAP).
- SAID is also recognised as a Voluntary Association by the Engineering Council of SA (ECSA).
- SAID is the only Institute for the registration of all disciplines of engineering draughtspersons.
- SAID membership has become a requirement by some companies as a criterion for employment.
- SAID registers employees from some of South Africa's largest multi-national consulting engineering companies and also the utility provider ESKOM.
- SAID has members who are employed worldwide — in Australia, New Zealand, England, Ireland, France, Germany, Namibia, Zambia, Botswana, Mozambique, Zimbabwe and Angola.
- Registering as a Student Member is the easiest way of obtaining membership of the institute.
- Recognition of your SAID membership is not only valuable now, but will assist in your future career advancement.

On completion of their studies, students undertaking an architectural career are required to complete a minimum of two years' supervised architectural draughting experience, prior to applying to SACAP for registration as a Candidate Architectural Draughtsperson (CAD).

Once registered, candidates are required to work under the direct supervision of a professionally registered person (Mentor) for three years, in accordance with the SACAP Practical Training and Examination Policy.

During the three years of Mentorship, candidates are required to follow a curriculum, as set out by SACAP, and to build up a portfolio of evidence, documenting the work and activities that they have undertaken during this three-year period. Monthly Training Records, as specified in the SACAP Practical Training and Examination Policy documentation, must be completed and submitted to SACAP on a monthly basis.

The SACAP Practical Training and Examination Policy document, outlining the curriculum and documents required for record keeping purposes, is downloadable from the registration section of the SACAP website [www.sacapsa.com](http://www.sacapsa.com).

After 18 months of practical training, and after obtaining a minimum of 50% of the value units required, candidates may apply to SACAP to write the Professional Practice Examination (PPE). However, Candidates must complete the balance of the Practical Training period of 36 months, and obtain the balance of the value units required, before the Candidate applies to be upgraded to Professional Architectural Draughtsperson (PAD).

Note: Submission of drawings to local authorities, for approval, may only be carried out by SACAP Registered Professionals.

# INTEC Introduction to Draughting Certificate

Career Starter



Enter the world of Draughting and be introduced to the fundamentals, your draughting tools, and various draughting disciplines such as Architectural, Mechanical and Electrical draughting.

## Programme Type

The INTEC Introduction to Draughting Certificate is part of the INTEC Career Starter series. The INTEC Introduction to Draughting Certificate is an INTEC certificate. This Programme is approved by the INTEC College Academic Board.\*

## Entrance Requirements

Grade 10 (Std. 8) or equivalent, or relevant work experience (2 years).

## Course Duration

You should be able to complete this course within 12 months.

## Course Content

This course consists of the following topics:

- Using Drawing Instruments
- Lines and Lettering
- Geometric Terms and Construction
- Basic Engineering Draughting
- Projections and Auxiliary Views
- Architectural and Electrical Draughting
- Pipe Draughting
- Reinforced Concrete
- Hydraulics

## Assessment

You are required to complete and submit your assignments to the college for marking. All assignments must be successfully passed in order to obtain the award.

## Award

On successful completion of this course, you will receive your INTEC Introduction to Draughting Certificate.

## FREE SABS Codes

The SABS codes that you will require are included with your course material.



## Your kit items

- At an additional special fee, you can add a set of high-quality, precision draughting instruments in an INTEC portfolio bag to your course.\*



\*INTEC College reserves the right to change the kit items without prior notice.

\* This programme does not lead to a qualification on the NQF.

## Certificate: General Draughting **NQF**

Qualification: CertGenDrau (INTEC) NQF 3  
SAQA ID: 21152  
NQF Level 3  
Credits: 120

This entry-level qualification will empower you with the skills and competencies required to accurately copy a given drawing to scale, trace given drawings, interpret drawings and use and apply geometric constructions in the operational draughting environment. Draughting skills can be applied in the fields of architecture, civil and mechanical engineering and construction, to name but a few. The programme will also enable access to further studies in this field.

### Entrance Requirements

Grade 10 (Standard 8) or equivalent, or verifiable and relevant working experience (2 years) preferably in a technical environment.

### Course Duration

You should be able to complete this course within 18 months.

### Certification

On successful completion of this course, you will receive a Certificate: General Draughting.

### Career Opportunities

This qualification will enable you to pursue a career in:

- Architectural Draughting
- Mechanical Draughting
- Pipe Draughting

## Further Education and Training Certificate: Draughting **NQF**

Qualification: FETCCertDrght (INTEC) NQF 4  
SAQA ID: 71589  
NQF Level 4  
Credits: 136

The Further Education and Training Certificate: Draughting equips you with an understanding of the fundamentals of draughting. The skills and competencies resultant from this programme will support the ability to handle accurate architectural drawings, mechanical drawings, and pipe drawings, as well as isometric drawings. Students will be taught to use scales and to read and interpret drawings within the field of draughting. This programme enables access into further studies in this field.

### Entrance Requirements

Grade 11 (Standard 9) with Engineering/Technical Drawing, or National Certificate Vocational L2 Engineering qualification or verifiable and relevant working experience (2 years) preferably in a technical environment.

### Course Duration

You should be able to complete this course within 18 months.

### Certification

On successful completion of this course, you will receive a Further Education and Training Certificate: Draughting.

### Career Opportunities

This qualification will enable you to pursue a career in:

- Architectural Draughting
- Piping Draughting
- Mechanical Draughting
- Autodesk Inventor Draughting



# INTEC Architectural Draughting Professional Certificate

Career Programme



Apply the knowledge of producing accurate plans and drawings to scale once you have successfully completed this course. This knowledge can be applied to your building construction work, using drawings to turn concepts into reality. This course teaches you to produce a sketch plan to a client's requirements, a presentation drawing, working drawings, schedules and specifications for a single-storey domestic building, and work satisfactorily under an architect's supervision.

## Programme Type

The INTEC Architectural Draughting Professional Certificate is an INTEC Career Programme. This Programme is approved by the INTEC College Academic Board.\*

## Entrance Requirements

Grade 11 (Std. 9) with Technical Drawing N2 or equivalent, or INTEC Introduction to Draughting Certificate, or relevant work experience (2 years).

## Course Duration

You should be able to complete this course within 24 months.

## Course Content

- Instruments
- Freehand Technical Sketching
- Plans, Sections and Elevations
- The Site Plan and Survey
- Sketch Plan Elevations
- Working Drawings: Plan, Sections and Elevations
- Structural and Masonry Details
- Roof Structure
- Electrical Layout
- Concrete Structures
- Three-dimensional Drawings
- Presentation Techniques
- Professional Procedure and Practice

## Assessment and Exam Information

All assignments are optional, but you are required to write and pass five formal examinations. Please note that examinations are written in June and October of each year. You should complete an exam entry form and submit it to the college, together with the prescribed examination fee, before the closing date of the next examination.

\* This programme does not lead to a qualification on the NQF.

Please note your exam fees are not included in your tuition fee.

## Award

On successful completion of this course, you will receive your INTEC Architectural Draughting Professional Certificate.

## FREE SABS Codes

The SABS codes that you will require are included with your course material.

## Your kit items

- At an additional special fee, you can add a set of high-quality, precision draughting instruments in an INTEC portfolio bag to your course.\*



## AutoCAD 2014

- **OPTIONAL:**  
Add on the AutoCAD course at an additional special fee.

Autodesk®



## REVIT 2014

- **OPTIONAL:**  
Add on the Revit Architecture course at an additional special fee.

Autodesk®



\*INTEC College reserves the right to change the kit items without prior notice.

# Diploma: Architectural Draughting **NQF**

Qualification: DipArcDrau (INTEC) NQF 6  
SAQA ID: 21153  
NQF Level 6  
Credits: 240

The Diploma: Architectural Draughting will provide you with a broad knowledge and understanding of the use of drawing instruments and equipment, use of scale, reading, interpretation and drawing of site plans, sections, elevations and working drawings. In addition, you will gain the skills and competencies to use and apply geometric and construction principles relevant to architectural requirements and the drawing up of complete presentation drawings for submission to local authorities.

## Entrance Requirements

Grade 12 (Standard 10), N3, or an INTEC General Draughting Certificate or equivalent, or verifiable and relevant working experience (3 years) preferably in a technical environment.

## Course Duration

You should be able to complete this course within 24 months.

## Certification

On successful completion of this course, you will receive a Diploma: Architectural Draughting.

## Career Opportunities

This qualification will enable you to pursue a career in:

- Architectural Draughting
- Autodesk Inventor Draughting
- Civil Draughting



# INTEC Mechanical Draughting Certificate

Career Programme



Learn to focus on drawings that contain comprehensive information, from dimensions, tolerances, surface finishes, materials, and heat treatments to manufacturing methods. This course helps you understand the purpose of engineering drawings, the line-work and symbols used in these drawings, and will teach you to construct a vector diagram.

## Programme Type

The INTEC Mechanical Draughting Certificate is an INTEC Career Programme. This Programme is approved by the INTEC College Academic Board.\*

## Entrance Requirements

Grade 11 (Std. 9) with Technical Drawing N2 or equivalent, or relevant work experience (2 years).

## Course Duration

You should be able to complete this course within 18 months.

## Course Content

- Introduction to Mechanical Draughting
- Geometric Terms
- Machine Drawing and Design
- Principles of Mechanics
- Platework
- Welding
- Mechanical Devices
- Mechanical Handling

## Assessment and Exam Information

All assignments are optional, but you are required to write and pass four formal examinations. Please note that examinations are written in June and October of each year. You should complete an exam entry form and submit it to the college, together with the prescribed examination fee, before the closing date of the next examination.

**Please take note that your examination fee is not included in your tuition fee.**

\* This programme does not lead to a qualification on the NQF.

## Award

After you successfully complete the course, you will receive your INTEC Mechanical Draughting Certificate.

## FREE SABS Codes

The SABS codes that you will require is included with your course material.



## Your kit items

- At an additional special fee, you can add a set of high-quality, precision draughting instruments in an INTEC portfolio bag to your course.\*



\*INTEC College reserves the right to change the kit items without prior notice.

## AutoCAD 2014

- **OPTIONAL:**  
Add on the AutoCAD course at an additional special fee.

Autodesk®



## Inventor 2014

- **OPTIONAL:**  
Add on the Inventor course at an additional special fee.

Autodesk®



\*INTEC College reserves the right to change the kit items without prior notice.



## Diploma: Mechanical Draughting **NQF**

Qualification: DipMechDraw (INTEC) NQF 6  
SAQA ID: 21157  
NQF Level 6  
Credits: 240

This programme enables a solid understanding of the use of drawing instruments, equipment and principles in order to draw machine components, mechanical devices, handling equipment, gears, hydraulic presses and turntables to scale. In addition, skills and competencies covered include the ability to calculate the strength of materials and conduct other calculations relevant to mechanical and machine component planning and design. The programme will thus prepare you for draughting within a range of fields by means of the use of computer-aided design.

### Entrance Requirements

Grade 12 (Standard 10), N3, or the Certificate: General Draughting with INTEC, or verifiable and relevant working experience (3 years) preferably in a technical environment.

### Course Duration

You should be able to complete this course within 24 months.

### Certification

On successful completion of this course, you will receive a Diploma: Mechanical Draughting.

### Career Opportunities

This qualification will enable you to pursue a career in/as a:

- CAD Operator
- Autodesk Inventor Draughting
- Civil and Architectural Draughting
- Mechanical Draughting

## Diploma: Pipe Draughting **NQF**

Qualification: DipPipeDraught (INTEC) NQF 5  
SAQA ID: 21158  
NQF Level 5  
Credits: 240

This programme is designed to enable the application of draughting principles to create geometric constructions, use third angle orthographic projection and draw pipes, fitments and more. Additional skills and competencies include detailing of piping, the drawing of expansion joints and the use of different calculations relevant to strengths of supports, pipe fitment supports and the detailing and design of small pipelines. The ability to use automation and select tundishes, launders and channels further support to the relevant skill sets related to the programme.

### Entrance Requirements

Grade 12 (Standard 10), N3, or an INTEC General Draughting Certificate, or verifiable and relevant working experience (3 years) preferably in a technical environment.

### Course Duration

You should be able to complete this course within 24 months.

### Certification

On successful completion of this course, you will receive a Diploma: Pipe Draughting.

### Career Opportunities

This qualification will enable you to pursue a career in/as a:

- Pipeline Project Manager
- Piping Draughting
- CAD Operator Draughting
- Pipe Designer
- Senior Pipe Designer
- Civil Draughting





Design and shape the world around you with the powerful, flexible features found in AutoCAD® 2014 software, one of the world's leading 2D and 3D CAD design tools. Maximise productivity by using powerful tools for design aggregation and documentation, connecting and streamlining your design and documentation workflows. AutoCAD will give you an understanding of the art of technical design and the effect of manipulation of technical drawings. It offers innovations that increase design and documentation efficiency enabling you to share those designs with colleagues in a more secure, accurate and seamless way.

## Programme Type

Autodesk AutoCAD® 2014 is an Agent Programme.

## AutoCAD 2014 System Requirements

### For 64-Bit AutoCAD® 2014

- Windows 8 Standard, Enterprise, or Professional edition, Windows 7 Enterprise, Ultimate, Professional, or Home Premium edition (compare Windows versions), or Windows XP Professional (SP2 or later)
- Athlon 64 with SSE2 technology, AMD Opteron™ processor with SSE2 technology, Intel® Xeon® processor with Intel EM64T support and SSE2 technology, or Pentium 4 with Intel EM64T support and SSE2 technology
- 2 GB RAM (4 GB recommended)
- 6 GB free space for installation
- 1,024 x 768 display resolution with true color (1,600 x 1,050 recommended)
- Internet Explorer 7 or later
- Install from download or DVD

Additional requirements for large datasets, point clouds, and 3D modeling (all configurations)

- Pentium 4 or Athlon processor, 3 GHz or greater, or Intel or AMD dual-core processor, 2 GHz or greater
- 4 GB RAM or more
- 6 GB hard-disk space available in addition to free space required for installation
- 1,280 x 1,024 true colour video display adapter 128 MB or greater, Pixel Shader 3.0 or greater, Microsoft® Direct3D®-capable workstation-class graphics card

### For 32-Bit AutoCAD® 2014

- Windows® 8 Standard, Enterprise, or Professional edition, Windows® 7 Enterprise, Ultimate, Professional, or Home Premium edition (compare Windows versions), or Windows XP® Professional or Home edition (SP3 or later) operating system
- For Windows 8 and Windows 7: Intel® Pentium® 4 or AMD Athlon™ dual-core processor, 3.0 GHz or higher with SSE2 technology
- For Windows XP: Pentium 4 or Athlon dual-core processor, 1.6 GHz or higher with SSE2 technology
- 2 GB RAM (4 GB recommended)
- 6 GB free disk space for installation
- 1024x768 display resolution with true colour (1600x1,050 recommended)
- Microsoft® Internet Explorer® 7 or later web browser
- Install from download or DVD

## Entrance Requirements

Grade 11 (Std.9) with Technical Drawing or N2 with Engineering Drawing, or relevant work experience (2 years).

## Course Duration

You should be able to complete this course within 18 months.

## Course Content

- Getting Started
- Basic Drawing Skills
- Using Drawing Aids
- Editing Entities
- Shaping Curves Controlling Object Visibility and Appearance
- Organizing Objects
- Hatching and Gradients
- Working with Blocks and Xrefs
- Creating and Editing Text
- Dimensioning
- Keeping In Control with Constraints
- Working with Layouts and Annotative Objects
- Printing and Plotting
- Working with Data
- Navigating 3D Models
- Modeling in 3D
- Presenting and Documenting 3D Design



## Assessment and Award

On successful completion of your INTEC assignments, you will receive a progress report. Once you have acquired the practical experience on the software package (recommended 50 hours) and successfully passed your assignments, you will be able to enrol for the Internationally-accredited Autodesk exam. The recommended hours before attempting the exam is 400 hours of practical hands-on application.

Please log onto <http://www.autodesk.co.za> to register for the exam. **Please note: your exam fees are not included in your tuition fee.**

Upon successful completion of your exam, you will receive your International certification from Autodesk.

Qualification: CertAutoCAD (INTEC) NQF 4  
SAQA ID: 21149  
NQF Level 4  
Credits: 120

AutoCAD Drafters are design professionals who use computer-aided design (CAD) software for drafting technical drawings used in the production and construction of complex objects and structures. The technical drawings that AutoCAD drafters create are used in architecture, engineering, aerospace and just about any discipline where something is being designed and built. The programme provides you with the relevant skills and competencies to apply drawing instructions and use CAD-specific editing and commands used for dimensioning as well as the handling of mechanical and construction-related drawings.

## Entrance Requirements

Grade 10 (Standard 8), N1 or equivalent, or relevant working experience (2 years) preferably in a technical environment.

## Course Duration

You should be able to complete this course within 18 months.

## Certification

On successful completion of this course, you will receive a Certificate: AutoCAD.

## Career Opportunities

This qualification will enable you to pursue a career in:

- Architectural Draughting
- Civil Draughting
- Mechanical Draughting

## Autodesk AutoCAD 2014 Textbook

Autodesk AutoCAD 2014 textbook

# Autodesk®

\*INTEC College reserves the right to change the kit items without prior notice.



## Your kit items

- Laptop bag
- External drive
- Wacom
- AutoCAD® 2014 textbook
- AutoCAD® 2014 Software

\*INTEC College reserves the right to change the kit items without prior notice.



# Autodesk® Revit® Architecture 2014

Agent  
Programme



# Autodesk® Revit® Architecture 2014 Cont.



Autodesk® Revit® Architecture building design software works the way architects and designers think, so you can develop higher-quality, more accurate architectural designs. Built for Building Information Modelling (BIM), Autodesk Revit Architecture helps you capture and analyse concepts and maintain your vision through design, documentation, and construction. Make more informed decisions with information-rich models to support sustainable design, construction planning, and fabrication. This programme is specifically developed for Building Information Modelling (BIM), helping building professionals to design, build and maintain higher-quality, more energy-efficient buildings.

## Programme Type

Autodesk® Revit® Architecture 2014 is an Agent Programme.

## Autodesk Revit 2014 Product System Requirements

For Autodesk® Revit® 2014, Autodesk® Revit® Architecture 2014, Autodesk® Revit® MEP 2014, and Autodesk® Revit® Structure 2014

## Minimum entry-level configuration

- Windows® 7 32-bit Enterprise, Ultimate, Professional, or Home Premium edition operating system
- Single- or multi-core Intel® Pentium®, Intel® Xeon®, or i-Series processor or AMD equivalent with SSE2 technology (highest affordable CPU speed rating recommended)
- Multiple cores for many tasks, up to 16 cores for near-photorealistic rendering operations
- 4 GB RAM (Usually sufficient for a typical editing session for a single model up to approximately 100 MB on disk. This estimate is based on internal testing and customer reports. Individual models will vary in their use of computer resources and performance characteristics.)
- Models created in previous versions of Revit products may require more available memory for the one-time upgrade process
- /3GB RAM switch not recommended. Revit software and system stability can be affected by memory conflicts with video drivers when the /3GB switch is active.
- 5 GB free disk space
- 1280x1024 monitor with true colour
- Display adapter capable of 24-bit colour for basic graphics, 256 MB DirectX® 11-capable graphics card with Shader Model 3 as recommended by Autodesk
- Microsoft® Internet Explorer® 7 (or later)
- MS-Mouse or 3Dconnexion®-compliant device
- Download or installation from DVD9 or USB key
- Internet connectivity for license registration and prerequisite component download

## Value: Balanced performance

- Windows® 8 64-bit Enterprise or Professional edition, or Windows 7 64-bit Enterprise, Ultimate, Professional, or Home Premium edition operating system
- Multicore Xeon or i-Series processor or AMD equivalent with SSE2 technology (highest affordable CPU speed rating recommended)
- Multiple cores for many tasks, up to 16 cores for near-photorealistic rendering operations

- 8 GB RAM (Usually sufficient for a typical editing session for a single model up to approximately 300 MB on disk. This estimate is based on internal testing and customer reports. Individual models will vary in their use of computer resources and performance characteristics.)
- Models created in previous versions of Revit software products may require more available memory for the one-time upgrade process
- 5 GB free disk space
- 1,680 x 1,050 monitor with true colour
- DirectX 11 capable graphics card with Shader Model 3 as recommended by Autodesk
- Internet Explorer 7 (or later)
- MS-Mouse or 3Dconnexion-compliant device
- Download or installation from DVD9 or USB key
- Internet connectivity for license registration and prerequisite component download

## Performance: Large, complex models

- Windows 8 64-bit Enterprise or Professional edition, or Windows 7 64-bit Enterprise, Ultimate, Professional, or Home Premium edition
- Multicore Xeon or i-Series processor or AMD equivalent with SSE2 technology (highest affordable CPU speed rating recommended)
- Multiple cores for many tasks, up to 16 cores for near-photorealistic rendering operations
- 16 GB RAM (Usually sufficient for a typical editing session for a single model up to approximately 700 MB on disk. This estimate is based on internal testing and customer reports. Individual models will vary in their use of computer resources and performance characteristics)
- Models created in previous versions of Revit software products may require more available memory for the one-time upgrade process
- 5 GB free disk space; 10,000+ RPM for Point Cloud interactions
- 1920x1200 monitor with true colour
- DirectX 10 capable graphics card with Shader Model 3 as recommended by Autodesk
- Internet Explorer 7 (or later)
- MS-Mouse or 3Dconnexion-compliant device
- Download or installation from DVD9 or USB key
- Internet connectivity for license registration and prerequisite component download

## For Autodesk Revit Server 2014, less than 75 concurrent users

- Microsoft® Windows® Server 2012 64-bit, Microsoft® Windows® Server 2008 R2 64-bit, or Microsoft® Windows® Server 2008 64-bit
- Processor with 4 or more cores and at least 2.6 GHz (6 or more cores and 3 GHz for maximum performance)
- Microsoft® Internet Information Server 7 (or later)
- 4 GB RAM (8 GB RAM for value performance, 16 GB for maximum performance)
- 7,200 or more RPM hard drive with 6Gbps link (10,000+ RPM recommended for value performance, 15,000 or more RPM for maximum performance)

## For Autodesk Revit Server 2014, 75 or more concurrent users

- Windows Server 2012 64-bit, Windows Server 2008 R2 64-bit, or Windows Server 2008 64-bit
- Processor with 6 or more cores and at least 2.6 GHz (8 or more cores and at least 2.6 GHz for value performance, 12 or more cores and 3 GHz for maximum performance)
- Internet Information Server 7 (or later)

# Autodesk® Revit® Architecture 2014 Cont.



- 8 GB RAM (16 GB RAM for value performance, 32 GB RAM for maximum performance)
- 15,000 or more RPM hard drive (high-speed RAID array of more than 15,000 RPM drives for maximum performance)
- VMware® Support
- Microsoft® Hyper-V® Support (See Revit Server Administrator's Guide)

## Revit Architecture for Citrix[2] 2014

- Windows 8 64-bit, Windows 7 32- and 64-bit
- Citrix system with XenApp® 6.0 or 6.5, Citrix® License Manager, and Citrix® Profile Manager
- Microsoft® Active Directory with support for roaming profiles
- Dedicated Autodesk license server for session-specific licenses
- Microsoft Internet Explorer 7 (or later)
- Client computers should be bound to the network domain, and each client computer should install either the full or web client plug-in
- Users should use their domain logins to access both the Citrix web console and the LAN

1. Learn more about using Revit Architecture 2014, Revit MEP 2014, Revit Structure 2014, and Revit 2014 software with Boot Camp®, part of Mac OS® X that enables you to install and run Windows (and Windows-based applications) on a Mac® computer or with Parallels Desktop®, a system utility available from Parallels, Inc. that enables you to run applications in each operating system without restarting your computer.
2. Revit Architecture 2014, Revit MEP 2014, and Revit Structure 2014 software products are Citrix Ready™ Applications. Disclaimer: The Citrix application is network-based and performance of Autodesk Citrix Ready Applications may vary with network performance. These Revit software products do not include the Citrix application, nor does Autodesk provide direct support for issues with the Citrix application. Users should contact Citrix directly with questions related to procurement and operation of the Citrix application.

## Entrance Requirements

Grade 12 (Std. 10) with Technical Drawing and PC literacy using a Windows Operating System or equivalent, or relevant work experience (2 years).

## Course Duration

You should be able to complete this course within 18 months.

## Table of Contents

- Introducing the Autodesk Revit Architecture Interface
- Walls and Curtain Walls
- Floors, Roofs, and Ceilings
- Stairs, Ramps, and Railings
- Adding Families
- Modifying Families
- Schematic Design
- Rooms and Color-Fill Plans
- Materials, Rendering, and Visualisation
- Worksharing

# Autodesk® Revit® Architecture 2014 Cont.



- Details and Annotations
- Creating Drawing Sets
- Workflow and Site Modeling
- Repeating Objects, Best Practices, and Quick Tips

## Assessment and Award

On successful completion of your INTEC assignments, you will receive a progress report. Once you have acquired the practical experience on the software package (recommended 50 hours) and successfully passed your assignments, you will be able to enrol for the internationally-accredited Autodesk exam. The recommended hours before attempting the exam is 50 hours of practical hands-on application.

Please log onto <http://www.autodesk.co.za> to register for the exam.

**Please note: your exam fees are not included in your tuition fee.**

Upon successful completion of your exam, you will receive your International certification from Autodesk.

## Your kit items

- Laptop bag
- Wireless mouse
- External drive
- Wacom
- Revit® Architecture 2014 textbook
- Revit® Architecture 2014 Software



\*INTEC College reserves the right to change the kit items without prior notice.

## Autodesk Revit Architecture 2014 Textbook

# Autodesk®

\*INTEC College reserves the right to change the kit items without prior notice.





Autodesk® Inventor® 3D CAD software products offer a comprehensive, flexible set of software for 3D mechanical design, product simulation, tooling creation, and design communication.

Inventor takes you beyond 3D to Digital Prototyping by enabling you to produce an accurate 3D model that can help you design, visualise, and simulate your products before they are built.

Digital Prototyping with Inventor helps companies design better products, reduce development costs, and get to market faster.

### Programme Type

Autodesk® Inventor® 2014 is an Agent Programme.

### Autodesk® Inventor® system requirements

System requirements for Autodesk Inventor 2014 products  
For Inventor 2014 Windows users

For general part and assembly design (typically fewer than 1,000 parts):

- Windows® 7 (32-bit minimum, 64-bit recommended) or Windows® 8 64-bit operating system
- Intel® Pentium® 4, AMD Athlon™ 64 with SSE2 technology, 3 GHz or greater, or AMD dual-core processor with SSE2, 2 GHz or greater recommended, or Intel® Xeon® E3 or Core i7 or equivalent with SSE2, 3.0 GHz or greater
- 4 GB RAM minimum for less than 500 part assemblies (8 GB recommended)
- 15 GB free disk space for installation
- 1,280 x 1,024 or higher screen resolution
- Microsoft® Direct3D 9® or compatible graphics card (Microsoft® Direct3D 11® or higher recommended)
- Microsoft® Internet Explorer® 6 or later (.NET Framework Version 4.5 web browser)
- Microsoft® Excel® 2003 or later software for iFeatures, iParts, iAssemblies, thread customization, and spreadsheet-driven designs
- Adobe® Flash® Player 10



- Internet connection for web downloads and Subscription Aware access
- Microsoft-compliant mouse or pointing device
- DVD-ROM drive

For complex models, complex mold assemblies, and large assemblies (typically more than 1,000 Parts):

- 64-bit Windows 7 or Windows 8
- Xeon E3 or Core i7 or equivalent, 3.3 GHz or greater
- 16 GB RAM or greater
- 15 GB free disk space for installation
- 1280x1024 or higher screen resolution
- Direct3D 9 or compatible graphics card (Direct3D 11 or higher recommended)
- Internet Explorer 6 or later (.NET Framework Version 4.5 web browser)
- Excel 2003 or later for iFeatures, iParts, iAssemblies, thread customisation, and spreadsheet-driven designs
- Flash Player 10
- Internet connection for web downloads and Subscription Aware access
- Microsoft-compliant mouse or pointing device
- DVD-ROM drive

For Inventor 2014 Mac® users  
On Boot Camp®:

You can install Autodesk Inventor Professional software on a Mac computer on a Windows partition. The system must use Apple Boot Camp to manage a dual OS configuration and meet the minimum system requirements.

- Mac OS® X 10.6 (10.8 or higher recommended)
- Boot Camp v2.0 or higher
- Windows 7 64-bit
- Intel® Core 2® Duo or greater processor with SSE2 technology, 3.0 GHz or greater
- 8 GB RAM or greater
- 64 GB free disk space on Windows OS partition (250 GB recommended)

Mac Virtualisation on Parallels Desktop:

- Mac OS X 10.6 (10.8 or higher recommended)
- Parallels Desktop 8.0 or higher
- 64-bit Windows 7 or Windows 8
- Core 2 Duo or greater with SSE2 technology, 3.0 GHz or greater
- 8 GB RAM (16 GB recommended)
- 500 GB free disk space or greater



- Autodesk Inventor 2014 software is provided both as 32-bit application and as 64-bit application for installation and use on the corresponding operating system only. Windows XP Professional 32-bit is not recommended for Inventor. English versions of Inventor will run on any language operating system. Other language versions of these applications will run on operating systems of that same language. Inventor and Autodesk® Vault® software must both be the same language on a given computer.
- Autodesk recommends settings which allow Windows to manage virtual memory as needed. There should always be at least twice as much free hard disk space as system memory (RAM). Recommended minimum RAM for using Inventor Tooling is 3 GB.
- Inventor 2014 is available only on DVD media (or electronic download in some situations). A DVD-ROM drive is not required if installing via electronic download.

### Entrance Requirements

Grade 12 (Std. 10) with Technical Drawing and PC literacy using a Windows Operating System or equivalent, or relevant work experience (2 years).

### Course Duration

You should be able to complete this course within 18 months.

### Course Content

- Connecting to the Interface
- Introducing Parametric Sketching
- Introducing Part Modeling
- Creating 2D Drawings from 3D Data
- Introducing Assembly Modeling
- Exploring Part Modeling
- Advanced Part Modeling
- Creating Advanced Drawings and Annotations
- Advanced Assembly and Engineering Tools
- Creating Sculpted and Multibody Parts
- Working with Sheet Metal Parts
- Building with the Frame Generator
- Working in a Weldment Environment
- Appendix Autodesk Inventor Certification



### Assessment and Award

On successful completion of your INTEC assignments, you will receive a progress report. Once you have acquired the practical experience on the software package (recommended 50 hours) and successfully passed your assignments, you will be able to enrol for the Internationally-accredited Autodesk exam. The recommended hours before attempting the exam is 50 hours of practical hands-on application.

Please log onto <http://www.autodesk.co.za> to register for the exam. **Please note: your exam fees are not included in your tuition fee.**

Upon successful completion of your exam, you will receive your International certification from Autodesk.

### Your kit items

- Laptop bag
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- External drive
- Wacom
- Inventor® 2014 textbook
- Inventor® 2014 Software



\*INTEC College reserves the right to change the kit items without prior notice.

### Inventor 2014 Textbook

# Autodesk®

\*INTEC College reserves the right to change the kit items without prior notice.



## Short courses in Draughting

The INTEC short courses in Draughting provide a broad base of knowledge in draughting, and the skills needed for entry into the draughting industry.

## INTEC Architectural Draughting Short Course Certificate

Career Starter

The INTEC Architectural Draughting Short Course Certificate enables you to read, interpret, and produce working architectural drawings for the construction field. You will understand the drawings and symbols used in working architectural drawings, interpret those drawings, use them to interpret the structure of a building, and produce working architectural drawings.

### Entrance Requirements

Grade 11 (Std. 9) with Mathematics or Technical Drawing or equivalent, or relevant work experience (2 years).

### Programme Type

The INTEC Architectural Draughting Short Course Certificate is part of the INTEC Career Starter series. The INTEC Architectural Draughting Short Course Certificate is an INTEC short course. This Programme is approved by the INTEC College Academic Board.\*

### Course Duration

You should be able to complete this course within 12 months.

### Course Outcomes

- Explain building practice in relation to architectural drawing.
- Read and interpret working architectural drawings.
- Use drawings to interpret the structure of a building.
- Produce working architectural drawings.
- Verify that information from drawings conforms to the construction activities.
- Issue, use and store architectural drawings.
- Submit architectural drawings for approval to a local authority.

### Assessment

You are required to complete and submit one assignment to the college for marking. All assignments must be successfully passed in order to obtain the award.

### Award

On successful completion of this course, you will receive your INTEC Architectural Draughting Short Course Certificate.

\* This programme does not lead to a qualification on the NQF.

## INTEC Mechanical Draughting Short Course Certificate

Career Starter

Acquire the knowledge and skills needed to produce a variety of mechanical drawings! The INTEC Mechanical Draughting Short Course Certificate introduces you to the production of working mechanical drawings.

### Entrance Requirements

Grade 11 (Std. 9) with Mathematics or Technical Drawing or equivalent, or relevant work experience (2 years).

### Programme Type

The INTEC Mechanical Draughting Short Course Certificate is part of the INTEC Career Starter series. The INTEC Mechanical Draughting Short Course Certificate is an INTEC short course. This Programme is approved by the INTEC College Academic Board.\*

### Course Duration

You should be able to complete this course within 12 months.

### Course Outcomes

- Demonstrate an understanding of conventional representation for mechanical draughting.
- Draw cam profiles.
- Produce sectional drawings.
- Produce detailed mechanical drawings.
- Produce an assembly drawing.

### Assessment

You are required to complete and submit one assignment to the college for marking. All assignments must be successfully passed in order to obtain the award.

### Award

On successful completion of this course, you will receive your INTEC Mechanical Draughting Short Course Certificate.

\* This programme does not lead to a qualification on the NQF.



# INTEC Piping Drafting Short Course Certificate

Career  
Starter

The INTEC Piping Drafting Short Course Certificate introduces you to the production and understanding of working piping drawings.

## Entrance Requirements

Grade 11 (Std. 9) with Mathematics or Technical Drawing or equivalent, or relevant work experience (2 years).

## Programme Type

The INTEC Piping Drafting Short Course Certificate is part of the INTEC Career Starter series. The INTEC Piping Drafting Short Course Certificate is an INTEC short course. This Programme is approved by the INTEC College Academic Board.\*

## Course Duration

You should be able to complete this course within 12 months.

## Course Outcomes

- Demonstrate an understanding of piping drafting.
- Identify and draw schematic drawings.
- Identify, describe and draw isometric layouts and flow diagrams.

## Assessment

You are required to complete and submit one assignment to the college for marking. All assignments must be successfully passed in order to obtain the award.

## Award

On successful completion of this course, you will receive your INTEC Piping Drafting Short Course Certificate.

\* This programme does not lead to a qualification on the NQF.

# INTEC Structural Steel Detailing Drafting Short Course Certificate

Career  
Starter

Acquire the necessary knowledge of various components of structural steel in order to produce detailed drawings for fabrication purposes. These structural steel components include beams, latticed girders, columns, roof trusses, bracings and portal frames. The details in the drawings include dimensions, notes and other fabrication-related information.

## Entrance Requirements

Grade 11 (Std. 9) with Mathematics or Technical Drawing or equivalent, or relevant work experience (2 years) .

## Programme Type

The INTEC Structural Steel Detailing Drafting Short Course Certificate is part of the INTEC Career Starter series. The INTEC Structural Steel Detailing Drafting Short Course Certificate is an INTEC short course. This Programme is approved by the INTEC College Academic Board.\*

## Course Duration

You should be able to complete this course within 12 months.

## Course Outcomes

- Demonstrate an understanding of structural steel detailing .
- Apply knowledge of beams, plates and box girders to produce a workshop fabrication drawing.
- Identify and detail bolted and welded columns and welded latticed girders.
- Identify and detail bolted welded roof trusses, detail bracings and portal frames.
- Compile fabrication documentation.

## Assessment

You are required to complete and submit one assignment to the college for marking. All assignments must be successfully passed in order to obtain the award.

## Award

On successful completion of this course, you will receive your INTEC Structural Steel Detailing Drafting Short Course Certificate.

\* This programme does not lead to a qualification on the NQF.

# INTEC Reinforced Concrete Detailing Draughting Short Course Certificate

Career Starter

The INTEC Reinforced Concrete Detailing Draughting Short Course Certificate is suitable for learners entering the field of reinforced concrete detailing draughting. It exposes learners to the basic commands needed to draw a 2D object. Learn how to draw and manipulate basic single component 2D drawings related to concrete reinforcing.

## Entrance Requirements

Grade 11 (Std. 9) with Mathematics or Technical Drawing or equivalent, or relevant work experience (2 years).

## Programme Type

The INTEC Reinforced Concrete Draughting Short Course Certificate is part of the INTEC Career Starter Series. The INTEC Reinforced Concrete Detailing Draughting Short Course Certificate is an INTEC short course. This Programme is approved by the INTEC College Academic Board.\*

## Course Duration

You should be able to complete this course within 12 months.

## Course Outcomes

- Understand reinforced concrete detailing.
- Produce detailed concrete reinforcing drawings.
- Compile drawings to detail and position columns and piles.
- Compile detailed floor slab drawings.
- Produce detailed drawings for staircases.
- Produce and present bending schedules.

## Assessment

You are required to complete and submit one assignment to the college for marking. All assignments must be successfully passed in order to obtain the award.

## Award

On successful completion of this course, you will receive your INTEC Reinforced Concrete Detailing Draughting Short Course Certificate.

\* This programme does not lead to a qualification on the NQF.

## Articulation Mind Map

