



# Education Subcommittee Update

Mahmoud ElGizawy

K&M Technology Group

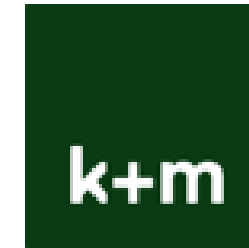
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# Speaker Bio

Mahmoud ElGizawy

- Drilling Surveying Domain Manager
- K&M Technology Group, Schlumberger
- PhD & MSc in Geomatics Engineering, U.of Calgary
- 23 years in positioning and navigation (18 years in wellbore positioning)
- Based in Abu Dhabi, UAE





# Mission Statement

- ISCWSA Education Subcommittee is an advisory body dedicated to raising awareness of wellbore positioning practices and challenges within the drilling industry through workshops, webinars, eBooks, public lectures, and other media.



# Agenda

- SPE Live and Webinars
- Students Awareness
  - WPTS Directional Drilling Competition proposal
  - Drillbotics Competition (DSATS)
  - PetroBowl
- Distinguished Lecture
- eBook Updates
- ISCWSA Course update



# SPE Live

- Planned two Webinars and two SPE Live this year
- 02-Mar-2023 SPE Webinar Completed
  - Geothermal Wellbore Surveying Challenges
  - Ross Lowdon – Speaker
  - David Gibson – Moderator
- 20- Sep-2023 SPE Live
- 05 – Oct – 2023 SPE Webinar
- 15 - Nov - 2023 SPE Live

## Proposed topics

- Webinar:
  - Your wells might not be where you think they are – Angus Jamieson
  - Survey Theory – Nestor Eduardo Ruiz
- SPE Live:
  - ISCWSA / WPTS introduction – Adrian and Hans
  - Recommended Practice for Safe Separation, Surveying, and Wellbore Positioning – Jonathan Lightfoot
- Actions:
  - Post ahead of time on linkedin
  - Email WPTS members



# Student Awareness – How to Attract Young Generation

- Proposal to have a WPTS competition using the Directional Drilling Simulator
- Drillbotics
- PetroBowl
- SPE Student Chapters reach out – ISCWSA Course Scholarship

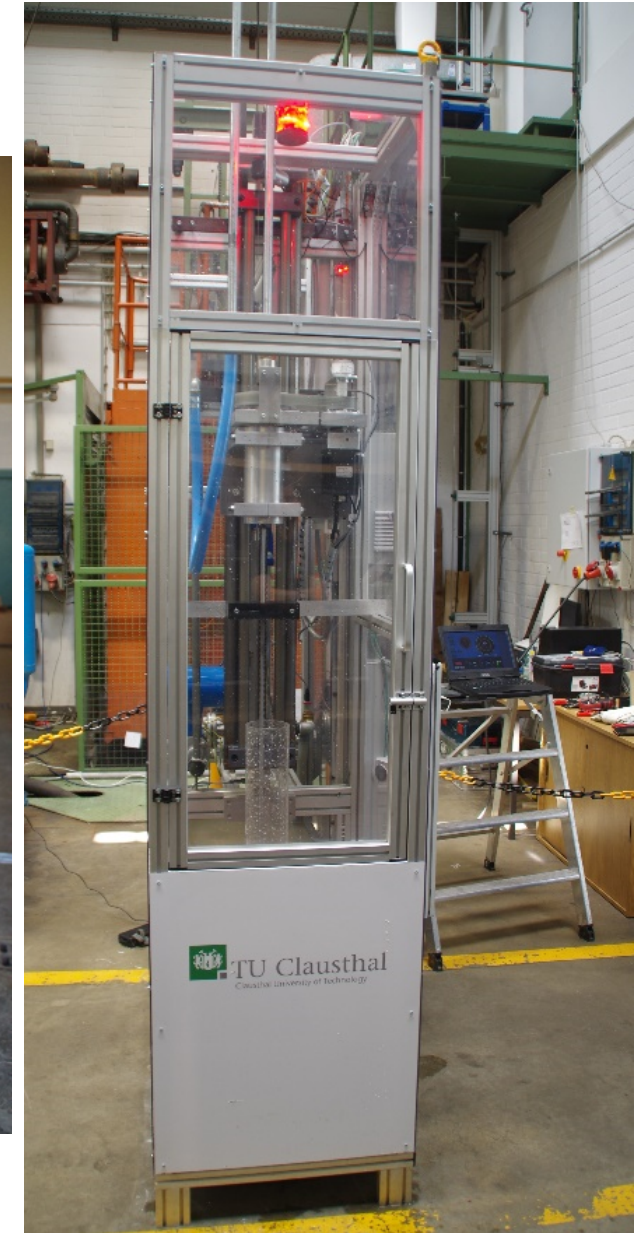


# WPTS Directional Drilling Competition Proposal

- Target university students
- A challenge to hit the target using the directional drilling simulator
- May be add a well plan section?
- Possibly elimination rounds
- Consider school year
- Winner could get a trip to ISCWSA Meeting?
- Might get corporate sponsors
- **Volunteers: M. Elshabrawy and Angus to have a proposal before next Oct meeting**

# What is Drillbotics?

- Drillbotics<sup>®</sup> is an international competition for universities to design and build a small drilling rig that uses sensors and control algorithms to autonomously drill a rock sample provided by SPE's Drilling Systems Automation Technical Section (DSATS) and Wellbore Position Technical Section (WPTS).
  - Group A - Option 1 – Generate a virtual model of the rig, the well, and a directional drilling technique.
  - Group A - Option 2 – Generate a simulator to detect and control a kick event.
  - Group B – build and operate a physical rig.
- In the 2023 competition, there is a directional component that will require steering and surveying to hit specified X/Y target coordinates at designated vertical depths. Drilling system must be able to switch between steering modes (slide/rotate) and survey mode (on/off bottom) autonomously.







# Volunteer Opportunities for ISCWSA

- Competition Judges (x2) – **David Gutierrez, Nestor Eduardo Ruiz**
  - Requirements:
    - Judge (remote or in-person) both Group A & B competition performances in May/June 2023 (Location & Dates TBD)
    - Primary contribution is expected to be in directional requirement & surveying practices
  - Time Commitment:
    - Read & familiarize self with Drillbotics Guidelines (~1 hr)
    - Competition judging (1 day)
- Table Attendants at Competitions (1-2 Per Competition) – **David Gutierrez, Suzanne Hawkins**
  - Requirements:
    - Responsible for attending competitions to hand out fliers & promote ISCWSA
    - Answering questions about the oil & gas industry and recruiting the next generation
  - Time Commitment:
    - Competition day (1 day)



# Volunteer Opportunities for ISCWSA

- Survey Theory Webinar Q&A Host (As many as are willing) – **Name 1, Name 2**
  - Requirements:
    - Many students have expressed interest in attending Q&A sessions with industry experts from various fields. ISCWSA could host several 30-minute Q&A sessions with the students to allow the opportunity to ask questions about survey theory & practice.
  - Time Commitment:
    - 30 – 60 minutes per session
    - Available by email to periodically answer questions
- Challenge Team Member (1-2) – **Name 1, Name 2**
  - Requirements:
    - Each summer, the Challenge Team meets to review the results of the previous year's competition & set the competition guidelines for the following school year.
    - Stay involved with the Drillbotics Committee throughout the year & commit to reviewing monthly updates from the university teams.
  - Time Commitment:
    - Varies throughout the year



# Competition Schedule

- Houston, Texas – May 21, 2022 (Virtual)
- Celle, Germany – June 2022 (Virtual)





# PetroBowl

## PetroBowl<sup>®</sup> Competition

The PetroBowl<sup>®</sup> competition matches SPE student chapter teams against one another in a fast-paced quiz competition covering technical and nontechnical aspects of the oil and gas industry.

<https://www.spe.org/en/students/petrobowl/>

- Connect with PetroBowl competition team to include questions on WBS (David Gutierrez)
- Questions are needed. Please submit your questions via the link

[ISCWSA - PetroBowl Q&A Submittal](#)

### ISCWSA - PetroBowl Q&A Submittal

The PetroBowl is an international competition hosted by the SPE that pits student chapter teams against each other in a series of quick-fire Q&A rounds related to the Oil & Gas industry. This is a great opportunity for the ISCWSA to continue spreading the message of the importance of wellbore positioning.



# ISCWSA Course Scholarship Proposal

- Tuition Fee: \$1200
- Proposal to have a special rate to students and professional in transition
- Or Student Scholarship to take the course. Sponsored by ISCWSA – Gibson Reports offer to sponsor the first scholarship
- Volunteers: small committee to receive applications and decide on the scholarship



# Distinguished Lecturer Program

Jonathan Lightfoot

Recommended Practice for Safe  
Separation, Surveying, and Wellbore  
Positioning



**SPE DISTINGUISHED  
LECTURER<sup>SM</sup>**



# Others

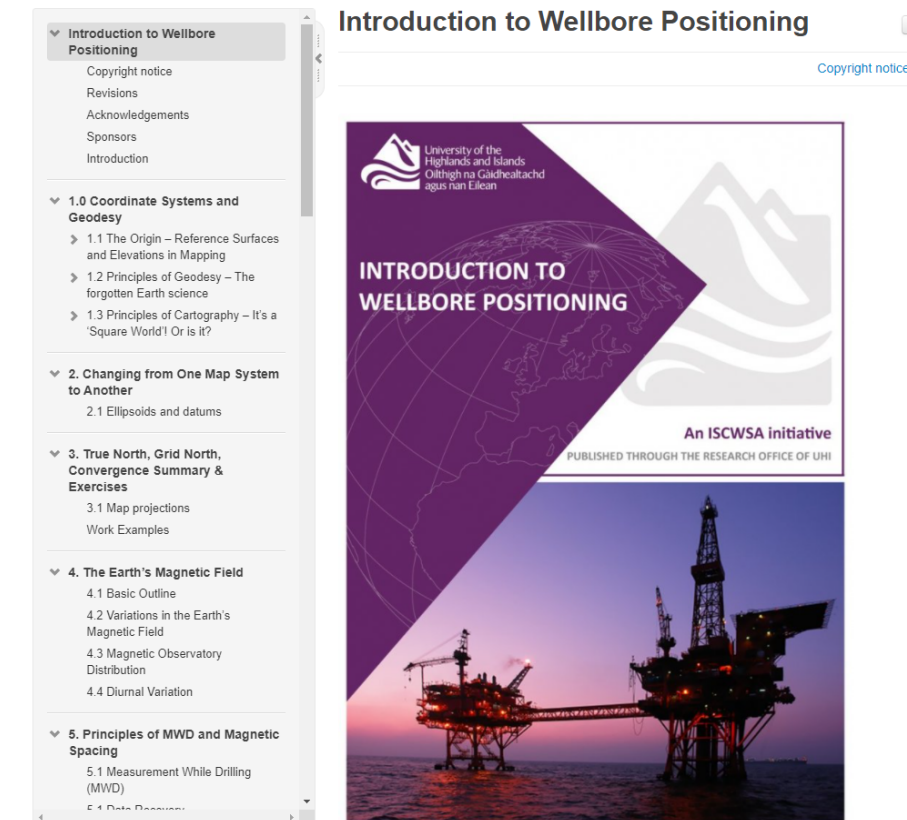
- **PetroBowl**
  - David Gutierrez to connect with PetroBowl competition team to include some questions on WBS
  - <https://www.spe.org/en/students/petrobowl/>
- **ISCWSA webpage search functionality is limited**
  - Documents require to be tagged with keywords to make them searchable
  - Effort had been started on this in the past
  - Need to gain traction and get it done

# eBooks Update

## Introduction to WBP

- **New Revision**
- **Cover update (remove UHI) / new design**
- **WPTS AC Update**
- **Error model revisions – rev5 update**
- Considering a change to the title
- Volunteer: SME to separate Introductory materials and advanced material (move to appendices)
- WBP eBook Web version is available

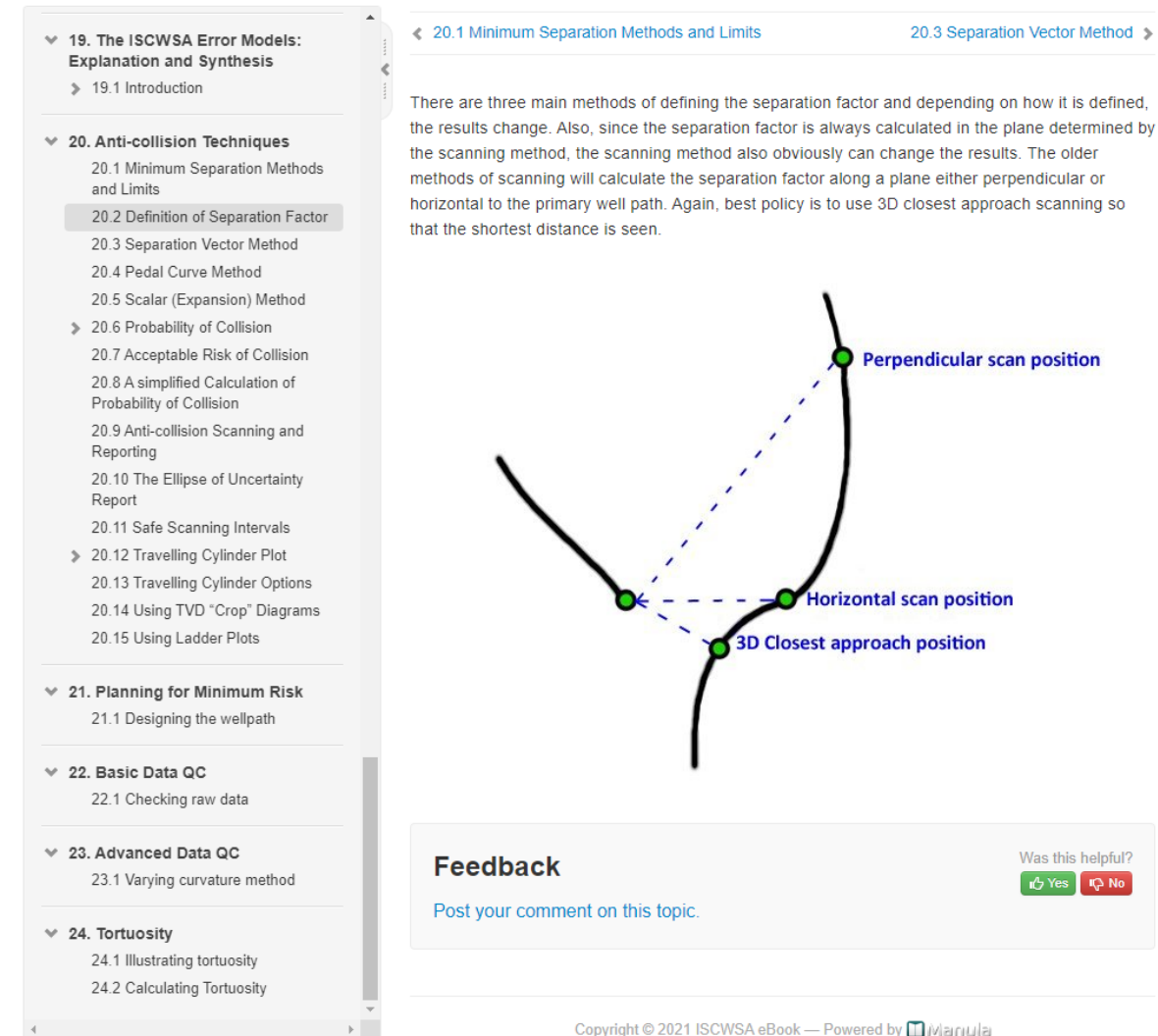
- ISCWSA hosting/copy right of eBooks
  - Introduction to WBP
  - Well Interception
  - Survey QC (Work-On-Progress)





# eBooks Update

- Call for content updates eBook Introduction to WBS
  - Please contact:  
Prof. Angus at [Angus.Jamieson@hptech.com](mailto:Angus.Jamieson@hptech.com)  
or  
Mahmoud at [Melgizawy@slb.com](mailto:Melgizawy@slb.com)
- Possible to provide feedback directly on the web version



The screenshot shows a digital eBook interface. On the left is a table of contents with sections 19 through 24. Section 20, 'Anti-collision Techniques', is expanded to show sub-sections 20.1 through 20.15. On the right, the content of section 20.1, 'Minimum Separation Methods and Limits', is displayed. It includes a paragraph explaining that separation factor results change based on scanning methods and that 3D closest approach scanning is the best policy. Below the text is a diagram showing two curved wellbore paths. Three points are marked: 'Perpendicular scan position' (top), 'Horizontal scan position' (middle), and '3D Closest approach position' (bottom). A feedback section at the bottom right asks 'Was this helpful?' with 'Yes' and 'No' buttons, and a text input field for comments. The footer of the screenshot reads 'Copyright © 2021 ISCWSA eBook — Powered by Manula'.

<https://www.manula.com/manuals/iscwsa-ebook/iscwsa-ebook-introduction>



# ISCWSA Course Progress

- Course Director: Robert Wylie
- Course Head Instructor: Prof. Angus Jamieson
  
- 11 students graduated from first Cohort
- Cohort # 2 started on March 28<sup>th</sup> , for completion by early June
- 7 Modules. One module per week, with three week deadline to complete assignment
- Recommended 4 hours per week
- 14 students signed up
  
- The plan is to have up to 20 students per course, course duration is 10 weeks, offered several times per year
  
- Detailed Updates to follow by Robert Wylie



# Update to Mission Statement

- Current Mission:

ISCWSA Education Subcommittee is an advisory body dedicated to raising awareness of wellbore positioning practices and challenges within the drilling industry through workshops, webinars, eBooks, public lectures, and other media.

- Currently under discussion among the Education SC members



# Acknowledgement

- Education SC members are acknowledged for their participation and contribution to the SC activities
- 20 Participants in last meeting
  - Carol Mann, DGI
  - Angus Jamieson, H&P
  - David Gibson, Gibson Reports
  - David Guieterrez, Superior QC
  - Robert Wylie, XnDrilling
  - Mark Frasier, SDI
  - Jamie Dorey, SDI
  - Benny Poedjono, Independent
  - Nicholas Zachman K+M
  - Suzanne Hawkins, Baker
  - Grace Nnorom Shell
  - Marcel Ngueguim, Equinor
  - Tim Paton, Superior QC
  - Mohamad Elshbrawy, Shell
  - Marina Ferreira Rego, SLB
  - Nestor Eduardo Ruiz, BlueOcean
  - Shaun Hingerty, performance drilling services
  - Barry Smart, Gyrodata
  - Abdullah AlDossay, Saudi Aramco



# Update : ISCWSA Online Training Course

## “Introduction to Wellbore Positioning”

Robert Wylie

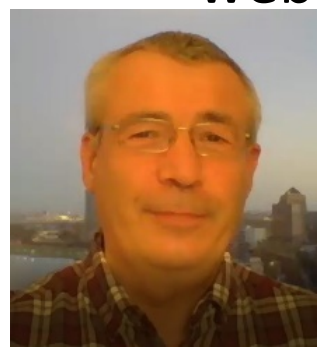
10th March, 2023

x<sup>n</sup>Drilling, Inc



## Wellbore Positioning Technical Section

- ISCWSA took over the ISCWSA eBook based “Introduction to Wellbore Positioning” training course from the UHI, and converted the course to run under a modern Learning Management System (edX) through the ISCWSA website.
- It now includes a series of videos lectures, readings, problems, exercises, and simulation examples, with Continuous Assessment grading.
- Registration for the course is through the [iscwsa.net](http://iscwsa.net) website, and it runs on an [iscwsa.net](http://iscwsa.net) Training Server



Title of slide

Week 0: Introduction – Connections

Week 1: Mapping and Geodesy

Week 1-1 : Mapping, Projections, and Datums

Week 1-2 : North References and Scale Factor

Week 2: MWD, Earth's magnetic field, QC, and Corrections

Week 2-1 : MWD and Earths Magnetic Field

Week 2-2 :Basic QC and Survey Corrections

Week 3: Drilling Rigs, Well Planning, and BHA design

Week 3-1 : The Drilling Rig

Week 3-2 : Introduction to Well Planning

Week 3-3 : Introduction to BHA Design

Week 3-4 : Directional Drilling Simulator

Week 4: Data Management, Quality Control, and Depth

Week 4-1 : Data Management and Data Audits

Week 4-2 : Depth Measurement, Uncertainty, and Corrections

Week 5: Survey Tools and Survey Calculations

Week 5-1 : Survey Tool Types

Week 5-2 : Survey Calculations

Week 6: Survey Uncertainty and Collision Avoidance

Week 6-1 : Uncertainties and how they propagate

Week 6-2 : Survey Uncertainties and Error Models

Week 6-3 : Anti-collision terminology, planning and operations

Week 7: High Accuracy Drilling

Week 7-1 : Survey Corrections for High Accuracy Drilling

Week 7-2 : Introduction to Ranging Technologies

Week 7-3 : Exercise - Drill Relief Well

Week 8: Revision Time and Examinations



The Industry Steering Committee on  
Wellbore Survey Accuracy (ISCWSA)

## Wellbore Positioning Technical Section



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NEWS

## Find the resources you need for better wellbore survey accuracy.

Industry Steering Committee on Wellbore Survey Accuracy (ISCWSA) produces, maintains, and publishes standards for the industry, promoting a collaborative understanding of issues associated with wellbore surveying.

[LEARN MORE](#)



### ISCWSA ONLINE TRAINING COURSE

The ISCWSA is pleased to announce that the next "Introduction to Wellbore Positioning" online course is scheduled to start in **March of 2022**. Applications for enrollment are now being accepted.

[ABOUT THE  
COURSE](#)

[APPLY  
NOW](#)

[GET  
UPDATES](#)



## Wellbore Positioning Technical Section

### THE ISCWSA WELLBORE POSITIONING COURSE

📅 STARTS SEP 2022 ⌚ APPLICATIONS ARE NOW BEING ACCEPTED.

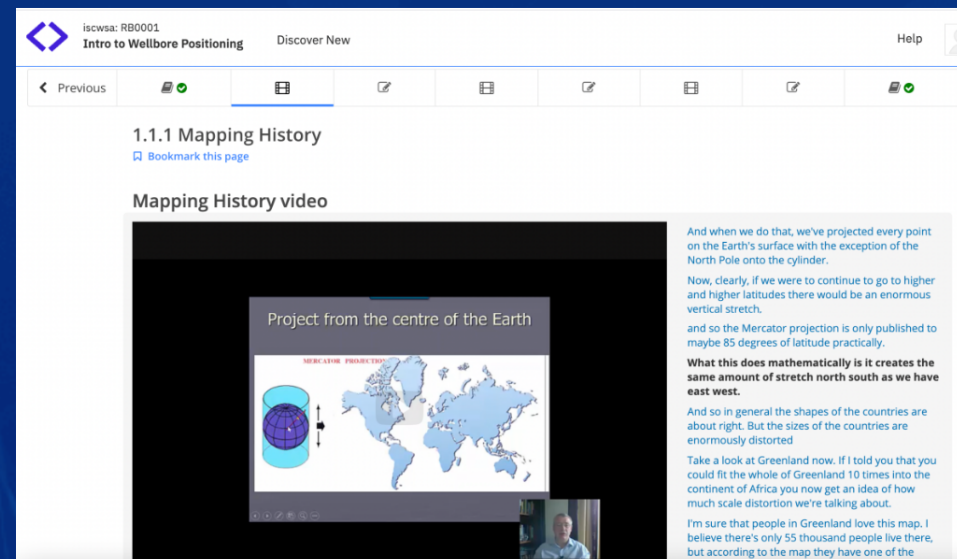
This course is based on the ISCWSA free eBook "Introduction to Wellbore Positioning". Using a mixture of videos, training exercises, and self-study material, it covers subjects such as Mapping, directional drilling, surveying, survey uncertainties, and high accuracy...

📅 APPLY NOW

### About the ISCWSA Wellbore Positioning Course

This course is based on the ISCWSA free eBook "Introduction to Wellbore Positioning".

Using a mixture of videos, training exercises, and self-study material, it covers subjects such as mapping and geodesy, directional drilling, surveying, survey uncertainties, and high accuracy directional drilling.



### What's in this course?

The course has 7 main teaching modules, in addition to introductions and reviews. It is expected that 2 modules will be completed every three weeks. Click on each "Week" Module to for an overview of what is included.

📅 STARTS SEP 2022

⌚ APPLICATIONS ARE NOW BEING ACCEPTED.

🕒 ENDS NOV 2022

💰 TUITION FEE \$1,200

📅 APPLY NOW

### Course Benefits

- 🌟 Industry recognized certificate
- 🎯 Be more informed in your work
- 👨‍🏫 Expert instructors
- 🕒 Paced to fit working students

### FAQs & Support Help

How do I earn this course's Certificate?

How long do I keep the course?

What daily hours are recommended?





## Course Features

- Easy Navigation
- Full video transcripts
- Progress tracking
- Variety of learning techniques
- Student interactions and discussion boards
- Practical exercises on useful topics

A screenshot of a course page for 'Intro to Week 6'. The page has a navigation bar at the top with links for 'Course', 'Progress', 'Discussion', 'Wiki', and 'Instructor'. Below the navigation bar is a breadcrumb trail: 'Course &gt; 6. Training Week 6 - Survey Uncertainty and Collision Avoidance &gt; 6.0 Week 6 Introduction &gt; Intro to Week 6'. The main content area has a 'Previous' button on the left and a 'Next' button on the right. The title 'Intro to Week 6' is followed by a 'Bookmark this page' link. The text describes the week's topic: 'Survey Uncertainty'. It asks 'Why are uncertainty envelopes elliptical and how big are they?' and states that the student will be given an introduction to the ISCWSA error model for MWD and an overview of collision avoidance techniques, separation factors, and scanning methods. Below this is a section for 'This week's readings' with a link to 'Read chapters 17-21 of the eBook Introduction to wellbore surveying for a more detailed understanding.' There is a 'STAFF DEBUG INFO' button. A video player is embedded, titled 'Video 6-0-A'. The video shows a man speaking. To the right of the video is a transcript that starts with 'Welcome to week six of the course. In this week we're going to look at uncertainty. I'm going to try and take you through a basic understanding of why ellipses of uncertainty are formed - what is the basic principle that makes it elliptical in the first place? What typical size and orientation of these ellipses will we see? And from that I want to advance to how we use that information in real error models and then, to go on from that to look at anti-collision and various methods of presentation of anti-collision that we use in the field.' There is another 'STAFF DEBUG INFO' button at the bottom right. At the very bottom of the page are 'Previous' and 'Next' navigation buttons.



- Currently running the fourth group (cohort) of students through the course
- 42 graduates from 3 cohorts
- Cohort #4 has started in January, and it about to finish
- Cohort #5 will start March 26<sup>th</sup>. Some students registered. Open for more students to register



## Cohort #1

RB010101	Abdelrahman Afify
RB010102	Teddy Chen
RB010103	Glenna Crookston
RB010104	David Gutierrez
RB010105	Saleel Kolakkodan
RB010106	Andrew Pare
RB010107	James Powell
RB010108	Georgy Rassadkin
RB010109	Nicholas Robertson
RB010110	Joseph Sanders
RB010111	Tyler Trammell

## Cohort #2

RB010201	Josh Albright
RB010202	Alec Berarducci
RB010203	Andres Diaz
RB010204	Joel Dunn
RB010205	Timothy Gee
RB010206	Mike Long
RB010207	Paul Reynerson
RB010208	Sheldon Schmidt
RB010209	Kevin Sutherland
RB010210	zackary whitlow



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RB010207	Paul Reynerson
RB010208	Sheldon Schmidt
RB010209	Kevin Sutherland
RB010210	zackary whitlow



# Virtual Talks

- Impact of Poor Wellbore Surveying Impact on Your Asset
  - Moderated: Angus Jamieson
  - Speakers: Two Keys industry leaders
  - Actions: confirm speakers and date
- Case Studies on how important the wellbore surveying practices
  - Led by Harald Bolt & Heather Vannoy