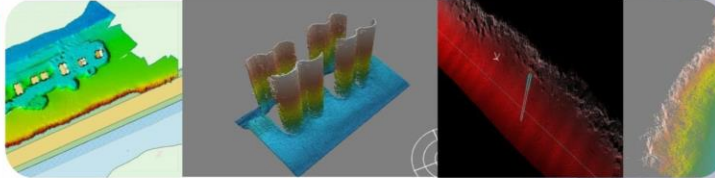




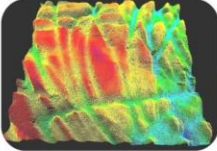
MULTIBEAM HYDROGRAPHIC SURVEYOR TRAINING COURSE, VISHAKHAPATNAM, INDIA

18-22 Feb 2019

International Centre
Promoting Excellence
in Geospatial Sciences



Practical Training for
Surveyors and
Hydrographers



Who should attend?
Ideally suited for hydrographic surveyors and users of hydrographic survey data from port and harbor authorities, the defense sector, oil and gas industries, hydrographic offices, and research and government agencies.



About the Program

About IIC Academy
IIC Academy is the educational arm of IIC Technologies Limited. The mission of the Academy is to provide industry - focused, world-class, accredited programs on geospatial sciences and undertake related applied research that has a significant societal and environmental impact.

For more information:
Tel. +91 770 224 4410
academy@icitechnologies.com
www.icacademy.com

- What's included?**
- Faculty comprising FIG/IHO/ICA S5 Cat 'A' qualified experts
 - IHO standards for data collection
 - Interactive tutorials supported by course manual
 - Practical onboard experience for collecting data
 - Guidance on post processing techniques from experts
 - Mentoring and assistance to develop in-house capability

- Instructor-led seminars include:**
- Bathymetric sonar theory and practice (multibeam & interferometric)
 - Depth, position and attitude errors
 - Adjusting for velocity and tidal corrections
 - Backscatter
 - Survey planning
 - Calibration, theory and best practice techniques
 - Data processing
 - Quality control, 3D visualization and editing
 - Bathymetric surface compilation

- Practical onboard experience:**
- Multibeam mobilization
 - Data collection software
 - Conduct a patch test and compute results
 - Sound velocity profile acquisition
 - Completion of a survey area – data collection and processing

Program Fee and Accommodation :
Program Fee : INR 80,000+GST (Indian Participants)
US\$2250 (International Participants)

Accommodation, travel and visa charges will be borne by the sponsoring organization or participant.

IIC will arrange for discount rates at the local hotels; details and booking assistance will be provided upon request. Vishakhapatnam is well connected by air and train from most cities in India, including Hyderabad.

"A very effective and fruitful course. Highly recommend the course to others"
– Cliff John, Seychelles



About Visakhapatnam (a.k.a Vizag)
Often called 'The Jewel of the East', Vizag is an important port situated on the east coast of India. Nestled among the hills of the Eastern Ghats facing the Bay of Bengal, Vizag is both the district's administrative headquarters and home of the Eastern Naval Command of the Indian Navy.



	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5		
MORNING	1.1) Welcome Ceremony – 0.5 to 1h 1.2) Introduction – 0.5h <ul style="list-style-type: none"> Introduction Health & Safety orientation Learning objectives 	2.1) Vertical Control: Tide and Sound Velocity Profile – 1h <ul style="list-style-type: none"> Purpose (water column, oceanography, referencing) Deployment and practices Processing considerations Equipment examples 	GROUP A <i>In Class:</i> <ul style="list-style-type: none"> Introduction to data acquisition software Vessel File Calibration Tool Attitude Editor Navigation Editor SVP, load tide (zero) Merge Manual cleaning 	GROUP B <i>Field work on training launch</i> <ul style="list-style-type: none"> Review of set-up Review software configuration Patch test (inc. SVP, draft) Hands-on practice 	GROUP B <i>In Class</i> <ul style="list-style-type: none"> Data processing of historical dataset Manual and automatic filters (subset editor, CUBE) SVP (advanced) Tide, GPS Tide 3D editing BASE Surfaces Advanced system functionality Output products 	GROUP A <i>Field Work on Training Launch</i> <ul style="list-style-type: none"> Performing a complete minor survey Review on data acquisition software - questions 	5.1) Processing Training Vessel Data – 2.5h <ul style="list-style-type: none"> Review of workflow Review of concepts Unloading data Processing Creating a final surface
	1.3) Multibeam System I – 2h <ul style="list-style-type: none"> Background, operation and functionality Sensors Example equipment 	2.2) Attitude, Heading - Inertial Measurement Unit (IMU) – 1h <ul style="list-style-type: none"> Sensors theory (how it works) Configurations and usage Processing considerations Long Period Heave 				5.2) Export functions – 1h <ul style="list-style-type: none"> ASCII export Other formats 	
1.4) Acquisition Software) – 0.5h to 1h <ul style="list-style-type: none"> Principles of data acquisition Workflow 	2.3) POSPac software – 1.5h				5.3) Questions & Review – 0.5h <ul style="list-style-type: none"> Discussions Trainee special cases Reflection on survey exercise Course critique 		
AFTERNOON	1.5) Survey Basics - 1.5h <ul style="list-style-type: none"> Best practice Source of errors Vessel mobilisation (layout, alignment survey, calibrations) Principles of patch test Survey plan 	2.4) Multibeam System II – 1.5 h <ul style="list-style-type: none"> System specific Configurations and usage Backscatter (introduction) 	GROUP A <i>Field work on training launch</i> <ul style="list-style-type: none"> Review of set-up Review software configuration Patch test (inc. SVP, draft) Hands-on practice 	GROUP B <i>In Class:</i> <ul style="list-style-type: none"> Introduction to data acquisition software Vessel File Calibration Tool Attitude Editor Navigation Editor SVP, load tide (zero) Merge Manual cleaning 	GROUP B <i>Field Work on Training Launch</i> <ul style="list-style-type: none"> Performing a complete minor survey Review of data acquisition software questions 	GROUP A <i>In Class</i> <ul style="list-style-type: none"> Data processing of historical dataset Manual and automatic filters (subset editor, CUBE) BASE Surfaces SVP (advanced) Tide, GPS Tide 3D editing Advanced system functionality Output products 	5.4) Data processing software – 1.5h <ul style="list-style-type: none"> Overview Workflow Hands-on practice
	1.6) Positioning – 1.5h <ul style="list-style-type: none"> Theory and functionality (GPS, historical) Configurations and usage Processing Equipment examples Transformations (coordinates, horizontal and vertical datum) Installation considerations Integration 	2.5) Bathymetric Model – 1h <ul style="list-style-type: none"> Total Propagated Uncertainties (TPU) CUBE 				5.5) Optional Topics – 1h to 1.5h <ul style="list-style-type: none"> Fair sheet production Introduction to Water column Imaging (theory and resource) Trainee dataset questions Further Readings 	
	2.6) Survey Organization – 1 h <ul style="list-style-type: none"> Survey planning Choice of equipment Mobilisation Site selection Surveying System calibration 				5.6) Closing Ceremony – 0.5 to 1h		
	2.7) Fieldwork review – 0.5h <ul style="list-style-type: none"> Presentation of vessel Plan for Day 3 						