COURSE OVERVIEW ME0702
RTRP Piping System (GRE, GRV or GRP) Manufacture, Design, Installation & Inspection

Course Title
RTRP Piping System (GRE, GRV or GRP) Manufacture, Design, Installation and Inspection

Course Date/Venue
September 08-12, 2024/Meeting Plus 8, City Centre Rotana, Doha, Qatar

Course Reference
ME0702

Course Duration/Credits
Five days/3.0 CEUs/30 PDHs

Course Date/Venue

This practical and highly-interactive course includes real-life case studies and exercises where participants will be engaged in a series of interactive small groups and class workshops.

This course is designed to provide participants with a detailed and up-to-date overview of RTRP Piping System (GRE, GRV or GRP) Manufacture, Design, Installation and Inspection. It covers the applications and advantages of GRE, GRV and GRP; the composition of RTRP materials including the properties of mechanical and thermal; the standards and specifications, manufacturing process, design principles and safety and environmental considerations; the pressure rating and temperature limitations; and the design for different fluid types.

Further, the course will also discuss the structural analysis covering finite element analysis (FEA) and failure modes and prevention; the support and anchoring systems, hydraulic design, and stress and fatigue analysis; the pre-installation planning, jointing techniques and installation techniques; the inspection and testing during installation, field repairs, modifications and safety protocols during installation; and the visual and dimensional inspection, advanced NDT methods, hydrostatic and pneumatic testing and long-term performance testing.

During this interactive course, participants will learn the QA/QC plans and documentation, traceability and record-keeping, defect identification and defect analysis; the maintenance plans and frequency and methods of inspection; preparing regulatory and compliance audits; the advanced materials and technologies and integrating RTRP with other systems; the eco-friendly practices in RTRP manufacturing; the sustainability in design and installation; and the emerging technologies and innovations in RTRP piping systems.

Course Objectives

Upon the successful completion of this course, each participant will be able to:-

- Apply and gain a comprehensive knowledge on RTRP piping system (GRE, GRV or GRP) manufacture, design, installation and inspection
- Discuss the applications and advantages of GRE, GRV and GRP
- Identify the composition of RTRP materials including the properties of mechanical and thermal
- Recognize the standards and specifications, manufacturing process, design principles and safety and environmental considerations
- Discuss the pressure rating and temperature limitations and the design for different fluid types
- Carryout structural analysis covering finite element analysis (FEA) and failure modes and prevention
- Recognize support and anchoring systems as well as illustrate hydraulic design, and stress and fatigue analysis
- Apply pre-installation planning, jointing techniques and installation techniques
- Employ inspection and testing during installation, field repairs, modifications and safety protocols during installation
- Carryout visual and dimensional inspection, advanced NDT methods, hydrostatic and pneumatic testing and long-term performance testing
- Apply QA/QC plans and documentation, traceability and record-keeping, defect identification and defect analysis
- Develop maintenance plans and review the frequency and methods of inspection
- Prepare regulatory and compliance audits, discuss advanced materials and technologies and integrate RTRP with other systems
- Explain the eco-friendly practices in RTRP manufacturing, sustainability in design and installation and emerging technologies and innovations in RTRP piping systems

Exclusive Smart Training Kit - H-STK®

*Participants of this course will receive the exclusive "Haward Smart Training Kit" (**H-STK®**). The **H-STK®** consists of a comprehensive set of technical content which includes **electronic version** of the course materials conveniently saved in a **Tablet PC**.*

Who Should Attend

This course provides an overview of all significant aspects and considerations of piping system (GRE, GRV or GRP) manufacture, design, installation and inspection for facility managers, water resource managers, civil engineers, environmental engineers, municipal engineers, plumbing contractors and regulatory compliance officers.

Course Certificate(s)

Internationally recognized certificates will be issued to all participants of the course completed a minimum of 80% of the total tuition hours.

Certificate Accreditations

Certificates are accredited by the following international accreditation organizations:-

- The International Accreditors for Continuing Education and Training (IACET - USA)

  Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

  Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units** (CEUs) in accordance with the rules & regulations of the International Accreditors for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

  Haward Technology Middle East will award **3.0 CEUs** (Continuing Education Units) or **30 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant's involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant's CEU and PDH Transcript of Records upon request.

- British Accreditation Council (BAC)

  Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

Course Fee

US$ 6,000 per Delegate. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Course Instructor(s)

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:

Mr. Steve Magalios, CEng, PGDip (on-going), MSc, BSc, is a **Senior Mechanical & Maintenance Engineer** with almost **40 years** of extensive **On-shore/Offshore** experience in the **Oil & Gas**, **Construction**, **Refinery** and **Petrochemical** industries. His expertise widely covers in the areas of **RTRP Piping Systems**, **Hydraulic Design**, **RTRP Pipe Repair & Maintenance**, **Preventive & Predictive** Maintenance, **Reliability Centered** Maintenance, **Applied Maintenance** Management, **Reliability** Modelling, **Reliability** Techniques, **Reliability Design** Techniques, Advanced **Root Causes** Analysis & Techniques, **Reliability** Management, **Pipeline Hot Tapping**, **Hot Tapping** Equipment, **Hot Tapping Operation**, **Boiler** Inspection & Maintenance, **Boiler** Systems, **Boiler** instrumentation & Controls, **Boiler** Start-up & Shutdown, **Boiler** Operation & Steam System Management, **Pipe Cuttings**, **Flange Bolt Tightening** Sequence, **Hydro Testing**, **Pump** Technology, Fundamentals of **Pumps**, **Pump** Selection & Installation, **Centrifugal Pumps & Troubleshooting**, **Reciprocating & Centrifugal Compressors**, **Screw Compressor**, **Compressor** Control & Protection, **Gas & Steam Turbines**, **Turbine** Operations, **Gas Turbine** Technology, **Valves**, **Process Control Valves**, **Bearings & Lubrication**, Advanced **Machinery Dynamics**, **Rubber Compounding**, **Elastomers**, **Thermoplastic**, **Industrial Rubber Products**, **Rubber** Manufacturing Systems, **Heat Transfer**, **Vulcanization Methods**, **Welding** Engineering, **Fabrication** & Inspection, **Welding** Techniques, Practical **Welding** Technology, **Welding** Inspection, **Welding & Machine Shop**, **Welding & Machining**, **Welding** Types & Applications, **Welding** Safety, **Welding** Defects Analysis, **TIG & Arc Welding**, **Shielded Metal Arc Welding**, **Gas Tungsten & Gas Metal Arc Welding**, **Welding** Procedure Specifications & Qualifications (WPS & WPQ), **Aluminium Welding**, Safe **Welding**, International **Welding Codes**, **Welding Procedure** Specifications, **Welding & Brazing**, **Welder** Performance Qualification, **Pipeline** Operation & Maintenance, **Pipeline** Systems, **Pipeline** Design & Construction, **Pipeline** Repair Methods, **Pipeline** Engineering, Pipeline Integrity Management System (**PIMS**). Currently, he is the **Chartered Professional Surveyor Engineer & Urban-Regional Planner** wherein he is deeply involved in providing exact data, measurements and determining properly boundaries. He is also responsible in preparing and maintaining sketches, maps, reports and legal description of surveys.

During his career, Mr. Magalios has gained his expertise and thorough practical experience through challenging positions such as a **Project Site Construction Manager**, **Supervision Head/Construction Manager**, **Construction Site Manager**, **Project Manager**, **Deputy PMS Manager**, **Head of the Public Project Inspection Field Team**, **Technical Consultant**, **Senior Consultant**, **Consultant/Lecturer**, **Construction Team Leader**, **Lead Pipeline Engineer**, **Project Construction Lead Supervising Engineer**, **Lead Site Engineer**, **Senior Site Engineer Lead Engineer**, **Senior Site Engineer**, **Mechanical Engineer**, **R.O.W. Coordinator**, **Site Representative**, **Supervision Head**, **Contractor**, Client Site Representative and Acting Client Site Representative for international Companies such as the Public Gas Corporation, Penspen International Limited, Eptista Servicios de Ingeneria S.I., J/V ILF Pantec TH. Papaioannou & Co. – Emenergy Engineering, J/V Karaylannis S.A. – Intracom Constructions S.A., Ergaz Ltd., Alkyonis 7, Palaeo Faliro, Piraeus, Elpet Valkaniki S.A., Asprofos S.A., J/V Depa S.A. just to name a few.

Mr. Magalios is a **Registered Chartered Engineer** and has **Master** and **Bachelor** degrees in **Surveying Engineering** from the **University of New Brunswick**, **Canada** and the **National Technical University of Athens**, **Greece**, respectively. Further, he is currently enrolled for **Post-graduate** in **Quality Assurance** from the **Hellenic Open University**, **Greece**. He has further obtained a Level 4B Certificates in Project Management from the National & Kapodistrian University of Athens, Greece and Environmental Auditing from the Environmental Auditors Registration Association (EARA). Moreover, he is a **Certified Instructor/Trainer**, a **Chartered Engineer** of Technical Chamber of Greece and has delivered numerous trainings, workshops, seminars, courses and conferences internationally.

Accommodation

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

Training Methodology

All our Courses are including **Hands-on Practical Sessions** using equipment, State-of-the-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

30% Lectures
20% Practical Workshops & Work Presentations
30% Hands-on Practical Exercises & Case Studies
20% Simulators (Hardware & Software) & Videos

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the course for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

Day 1 ***Sunday, 08th of September 2024***

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0900	***Introduction to RTRP Piping Systems*** *Overview of GRE, GRV, & GRP • Applications & Advantages*
0900 - 0930	***Materials & Properties*** *Composition of RTRP Materials • Mechanical & Thermal Properties*
0930 – 0945	*Break*
0945 – 1100	***Standards & Specifications*** *Key Industry Standards (e.g., ASTM, ISO) • Compliance & Certification Requirements*
1100 – 1230	***Manufacturing Process*** *Filament Winding & Hand Lay-Up Techniques • Quality Control in Manufacturing*
1230 – 1245	*Break*
1245 – 1330	***Design Principles*** *Basic Design Considerations • Load & Stress Analysis*
1330 - 1420	***Safety & Environmental Considerations*** *Handling & Storage of RTRP Materials • Environmental Impact & Safety Measures*
1420 – 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2 ***Monday, 09th of September 2024***

0730 – 0830	***Detailed Design Criteria*** *Pressure Rating & Temperature Limitations • Design for Different Fluid Types*
0830 - 0930	***Structural Analysis*** *Finite Element Analysis (FEA) • Failure Modes & Prevention*
0930 – 0945	*Break*

0945 – 1100	***Support & Anchoring Systems*** *Types of Supports & their Design • Thermal Expansion & Contraction Considerations*
1100 – 1230	***Hydraulic Design*** *Flow Dynamics & Friction Loss Calculations • Designing for Optimal Flow*
1230 – 1245	*Break*
1245 – 1330	***Stress & Fatigue Analysis*** *Long-Term Performance Considerations • Fatigue Life Prediction*
1330 – 1420	***Case Studies & Design Examples*** *Real-World Examples & Problem-Solving*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3: Tuesday, 10th of September 2024

0730 – 0830	***Pre-Installation Planning*** *Site Preparation & Logistics • Tools & Equipment Required*
0830 - 0930	***Jointing Techniques*** *Types of Joints & their Applications • Bonding, Lamination, & Mechanical Joints*
0930 – 0945	*Break*
0945 – 1100	***Installation Techniques*** *Step-by-Step Installation Process • Handling & Positioning of Pipes*
1100 – 1230	***Inspection & Testing During Installation*** *Visual Inspection & Non-Destructive Testing (NDT) • Pressure Testing & Leak Detection*
1230 – 1245	*Break*
1245 – 1330	***Field Repairs & Modifications*** *Techniques for Field Repairs • Modifying Existing Installations*
1330 – 1420	***Safety Protocols During Installation*** *Personal Protective Equipment (PPE) • Hazard Identification & Mitigation*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4: Wednesday, 11th of September 2024

0730 – 0830	***Inspection Techniques*** *Visual & Dimensional Inspection • Advanced NDT Methods (e.g., Ultrasonic, Radiographic)*
0830 - 0930	***Testing Methods*** *Hydrostatic & Pneumatic Testing • Long-Term Performance Testing*
0930 – 0945	*Break*
0945 – 1100	***Quality Assurance Procedures*** *QA/QC Plans & Documentation • Traceability & Record-Keeping*
1100 – 1230	***Defect Identification & Analysis*** *Common Defects & their Causes • Methods for Defect Analysis*
1230 – 1245	*Break*
1245 – 1330	***Maintenance & Inspection Schedules*** *Developing Maintenance Plans • Frequency & Methods of Inspection*
1330 – 1420	***Regulatory & Compliance Audits*** *Preparing for Audits • Ensuring Ongoing Compliance*
1420 – 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5 ***Thursday, 12th of September 2024***

0730 – 0830	***Advanced Materials & Technologies*** *New Developments in RTRP Materials • Enhanced Manufacturing Techniques*
0830 - 0930	***Integration with Other Systems*** *Compatibility with other Piping Systems • Hybrid Systems & their Applications*
0930 – 0945	*Break*
0945 – 1045	***Environmental & Sustainability Considerations*** *Eco-Friendly Practices in RTRP Manufacturing • Sustainability in Design & Installation*
1045 - 1200	***Case Studies & Lessons Learned*** *Analysis of Past Projects • Lessons from Failures & Successes*
1200 – 1215	*Break*
1215 – 1345	***Future Trends in RTRP Piping Systems*** *Emerging Technologies & Innovations • Predictions for the Future of RTRP Systems*
1345 – 1400	***Course Conclusion***
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

Practical Sessions

This practical and highly-interactive course includes real-life case studies and exercises:-

Course Coordinator

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