

Company overview

Subsea engineering and training experts

Jee at a glance



• Reputation for excellence - high FPAL scores for all criteria



• Oil, gas and renewables



• Developing relationships since 1988



• FPAL and UVDB verified



• Scalable workforce



• World renowned training courses



• Global presence



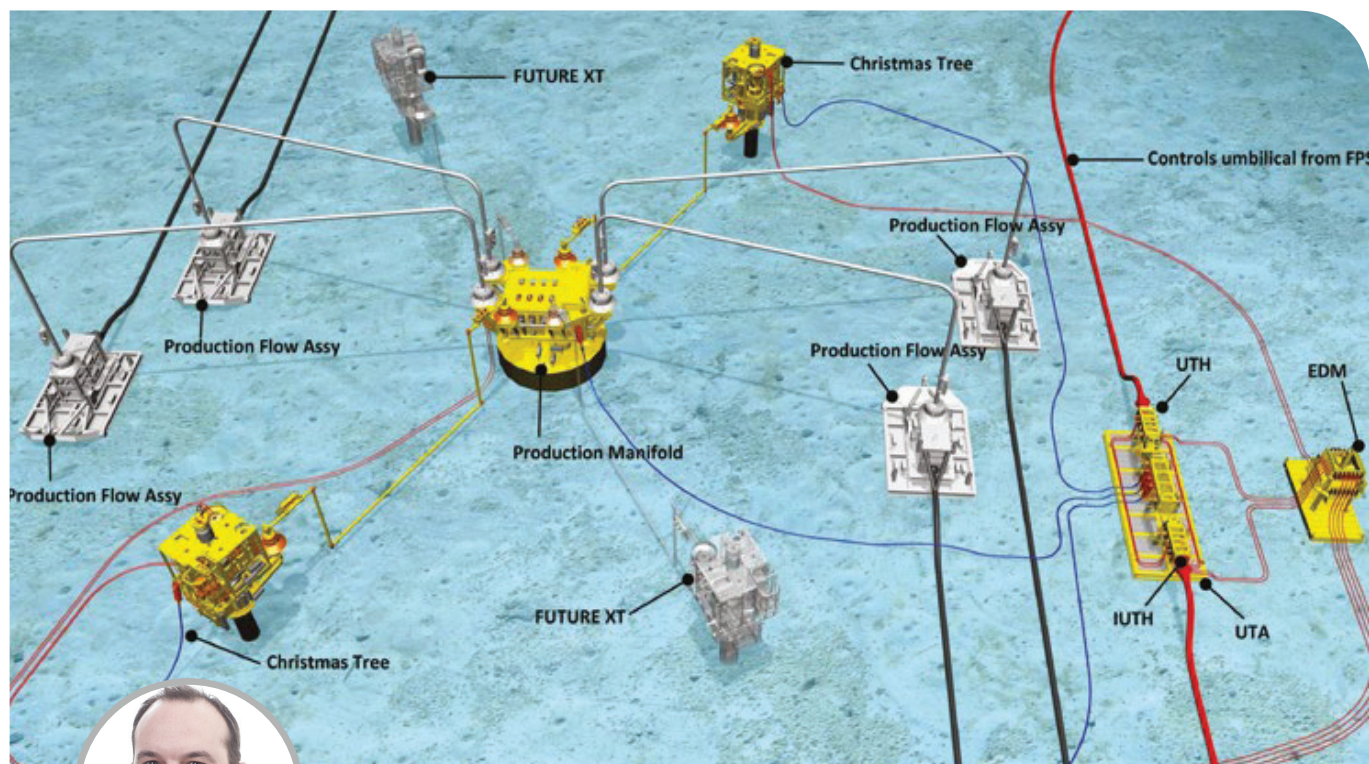
• ISO 9001, 14001 and OHSAS 18001 certified



• Whole life-of-field



• We're independent - our recommendations are impartial



Since Jee was established in 1988, we have grown steadily to become a leading subsea engineering and training firm delivering projects globally. We are customer focused and pride ourselves on delivering high quality, cost effective and innovative solutions.

Services spanning the whole life-of-field

As a multi-disciplinary team, we can take responsibility for your projects over the entire lifecycle. Our capabilities span from design, pigging and integrity management through to life extension and decommissioning.

Focus on quality

All of our projects are professionally project managed under our business management system and we receive outstanding feedback from our clients. We consistently achieve top class scores for quality on FPAL and UVDB and scored 90% for quality during our last UVDB audit.

Teamwork and collaboration

We work collaboratively with clients and other service providers to share best practice, maximise opportunities and minimise risks. We integrate seamlessly with any project team, working remotely or on secondment at our clients' offices.

Thinking outside the box

Where appropriate our engineers challenge the status quo and develop innovative solutions. We push the boundaries, explore new methodologies and technologies and strive to develop the industry and best practice. We thrive on challenging projects and relish the opportunity to do something that has never been done before.

We look forward to working with you.

Jonathan McGregor

Managing Director

Design and installation

With our broad expertise and knowledge in subsea engineering we provide expert services at the field development, conceptual, FEED, detailed design and verification phases of oil, gas and renewables projects.

We have worked on over 100 subsea design projects including the design of rigid pipelines, flexibles, risers, pipe-in-pipe, bundles, J-tubes, caissons, cathodic protection systems, subsea structures, structural clamps, pig launchers and cable protection systems. Our project portfolio spans both onshore and offshore design, with subsea design in water depths up to 3,000 metres.

Our highly experienced analysts' design experience ranges from single well shallow water brownfield developments through to complex deepwater greenfield developments.



John French
MEng, CEng, MIMechE
Head of Design

John is an experienced engineer who has been being working in the oil and gas industry for over 15 years. As our Head of Design, John provides technical assurance for all aspects of pipeline system design from FEED through to detailed design. John has successfully managed a range of design projects from large diameter pipelines for major operators through to small scale subsea tie-backs for independent North Sea operators.



Our team ensures that solutions are compliant with industry best practices and code requirements, seeking to remove all unnecessary conservatism to deliver a solution which is not just safe and reliable, but also optimised to minimise CAPEX and OPEX, giving your projects the highest chance of success.

Over our 30 years in operation, we have developed a suite of efficient pipeline design tools including FEA models and Mathcad calculations which comply with the latest industry standards and can quickly be applied to your project. These established tools can easily be adapted to include specific customer requirements.

With this extensive experience behind us, we ensure the most efficient, cost effective and safest practices are followed, providing a valuable and lasting contribution to our clients' offshore projects.

Independent design verification

Our independence sets us apart from other design houses and positions us perfectly for third party verification work. We have no separate owner, venture capitalist, bank, manufacturer or contractor to influence us, meaning we always have our client's best interests at the core of all decisions. We align ourselves 100% with our client's business objectives thus guaranteeing impartial, unbiased advice at all times.

Our design services

- ✦ Feasibility studies
- ✦ Field development studies
- ✦ Conceptual design (pre-FEED)
- ✦ FEED
- ✦ Detailed design
- ✦ Installation analysis
- ✦ Third party verification
- ✦ Supporting studies
 - Stability analysis
 - Fishing interaction and overtrawlability
 - Buckling assessment
 - Repair design
 - Fatigue analysis
 - Trenching and burial assessment
 - Carbon capture and storage
- Flow assurance and hydraulic analysis
- Stress analysis
- Thermal analysis
- Wall thickness studies
- Dropped object analysis
- River crossings
- Re-rating / change of use
- Rock berm design
- Connectors
- VIV analysis
- Inter array cable routing and layout optimisation
- Installation and in-place cable analysis
- Cable thermal analysis including CPS effects
- Cable fatigue assessment
- Cable protection and stability

Integrity management

Jee has been providing integrity management services since the formation of the company in 1988. Annually we provide integrity management services for over 200 pipelines, 170 risers and 12 landfalls, including subsea structures and pig traps for a number of major operators.

Integrity management is a cyclic assurance process, comprising planning, implementing, assessing and improving. The diagram below shows how each stage of the cycle feeds into the next, with success only achievable with high-quality at all stages. With expert knowledge in all these areas, we are able to offer a completely integrated and objective approach.

We have a proven track record in efficiently managing the complex documentation that forms the foundation of the PIMS structure employed by many major operators.

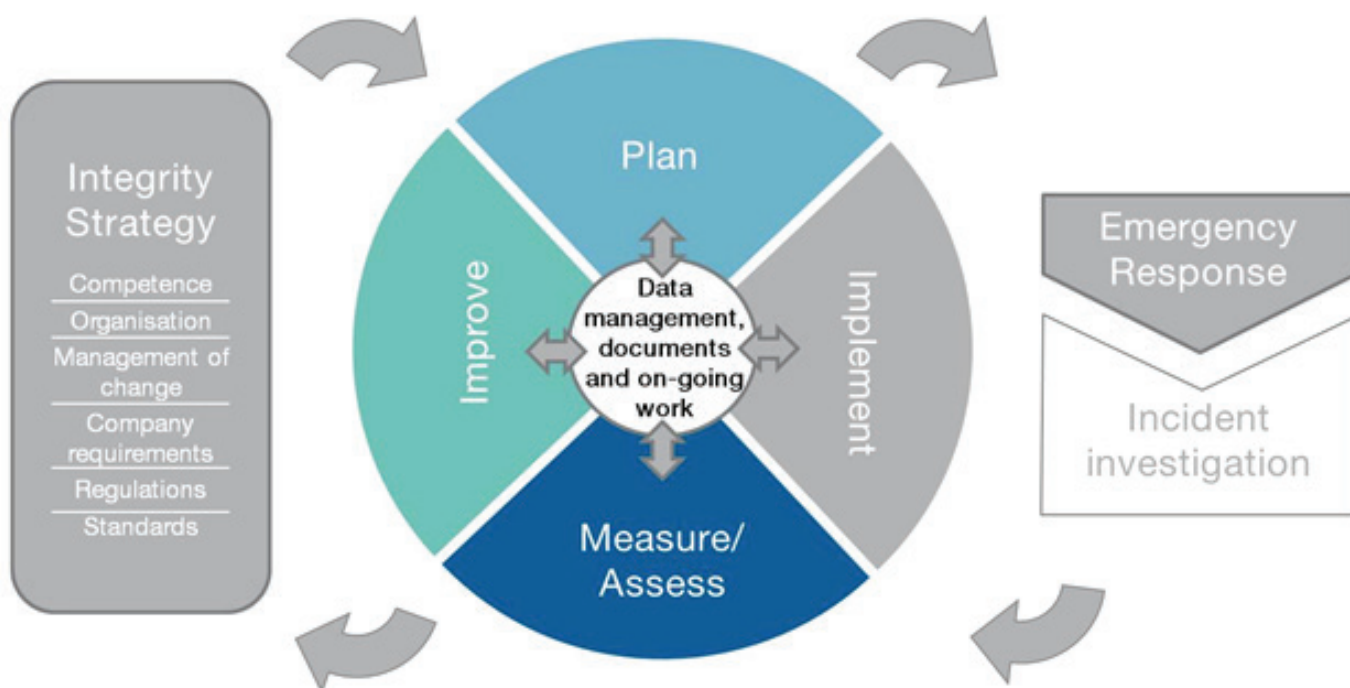
We take a pragmatic approach to carrying out engineering work. We have a great deal of operational experience and this feeds into our approach to engineering. We understand and apply industry codes and standards and incorporate our wealth of experience to ensure that the engineering solution is pragmatic and cost effective.



Grant Adam

BSc, PgDip, CEng, CMarEng, MIMarEst
Head of Integrity Management

Grant is an experienced chartered engineer with over 20 years' industry experience and in-depth knowledge of integrity management, including internal and external inspection. Working closely with a number of major operators, Grant provides technical authority services, advising on all aspects of design, construction, integrity, repair and the operation of pipeline systems.



Our integrity management services

- ✦ Integrity management processes and plans
 - Pipeline integrity management system (PIMS)
 - Subsea integrity management system (SIMS)
 - Major accident prevention document (MAPD)
 - Corrosion management strategy
 - Pipeline spares strategy
 - Pipeline emergency response plan (ERP)
 - Pipeline preparedness and response scheme (PRS)
 - Provision of pipeline competent person (PCP)
 - Right of way (ROW) management
 - Lessons learnt
 - Due diligence
- ✦ Engineering assessments
 - Risk based assessment (RBA)
 - Condition based assessment
 - Failure mode, effects and criticality analysis (FMECA)
 - ICCP assessment (impressed current cathodic protection)
 - Cathodic assessment (CP)
 - Anomaly and defect assessment
 - Fitness for service / purpose
 - Pipeline repair or remedial specification / analysis / design
- ✦ Inspection and maintenance planning
 - Risk based inspection (RBI)
 - Inspection programme and plans
 - Inspection and maintenance routine (IMR)
 - Key performance indicators (KPIs) / process safety performance indicators (PSPIs)
 - Subsea inspection strategy
 - Inspection work scope
 - Pipeline anomaly criteria
- ✦ Pipeline annual condition reporting
 - Annual corrosion assessment
 - Annual pipeline integrity statement
 - Technical integrity assessment
- ✦ Specialist engineering analyses
 - Riser analysis
 - Fatigue analysis
 - Upheaval and lateral buckling analysis
 - Engineering critical assessment (ECA)
 - Corrosion defect assessment
 - Dropped object analysis



Pigging and plugging

Offering engineering support, technical assurance and project management, Jee has a long track record of undertaking pigging and plugging projects worldwide.

Our pigging and plugging services cover all phases of the asset lifecycle from feasibility studies, commissioning pigging and baseline in-line inspections (ILI), through operational cleaning and life-of-field ILI campaigns, to cleaning for decommissioning. Focussed on reducing risk and maximising the probability of a successful operation, Jee's engineers are specialists in challenging scenarios such as "unpiggable" pipelines, subsea launch and receipt, ultra-deepwater HP/HT lines, multi-diameter pipelines and flexible risers.

Whilst each project is unique and has its own critical features, the typical sequence that Jee has worked to when supporting plugging isolation tool projects is shown opposite. Our involvement has ranged from single activities to support throughout the whole project process.

We are happy to provide support for ad-hoc requirements or fulfil a technical advisory role, in whichever form the operator may require.



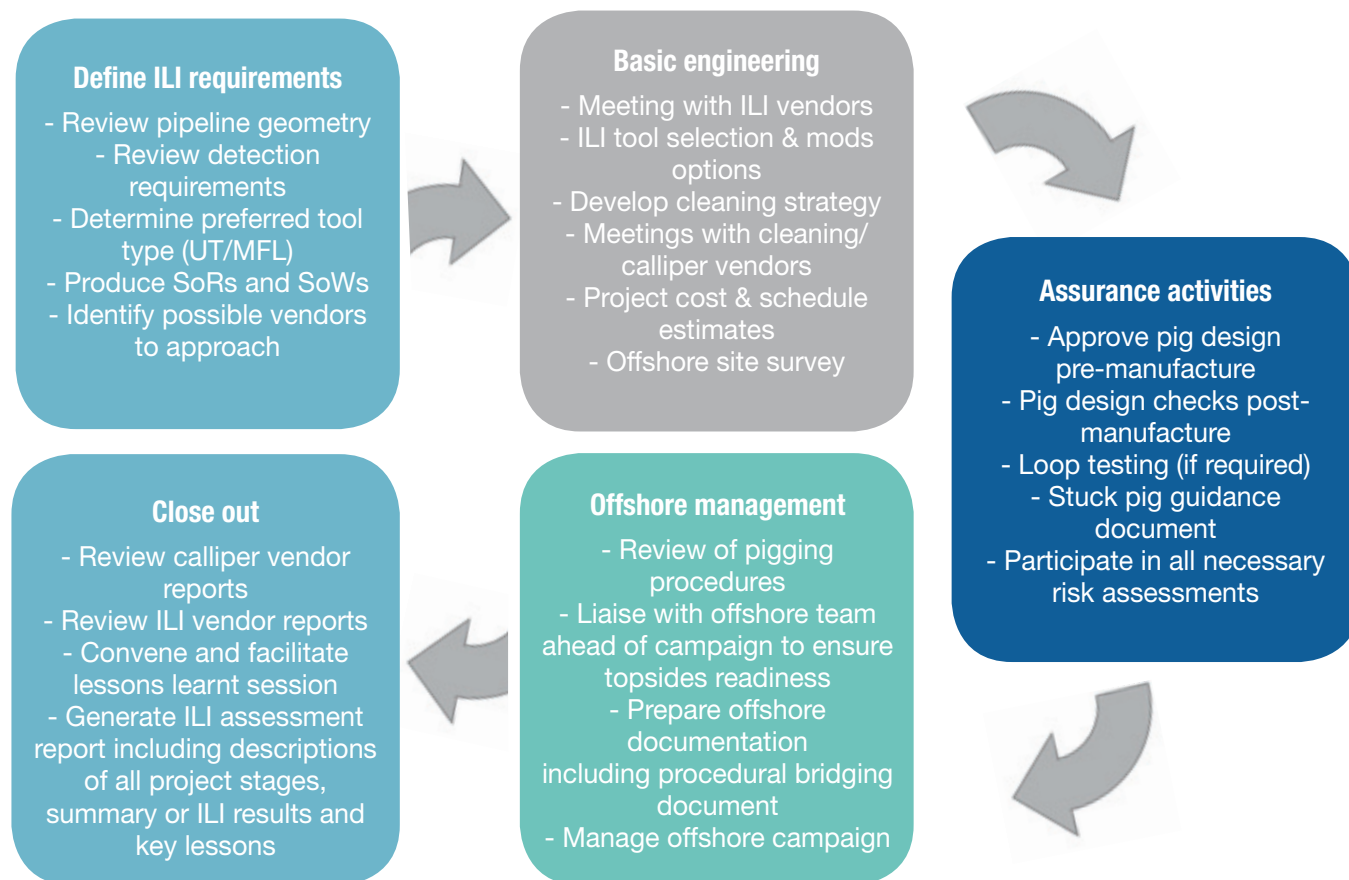
Paul Otway

MEng (Hons), CEng, MIMechE
Head of Pigging

Paul has extensive experience in subsea pipeline design and integrity projects for global operators, particularly ILI campaigns and offshore management of pigging operations. With niche skills in defining technical pigging campaigns, pig selection and design, Paul won the Subsea UK Emerging Talent award in 2013 for his ILI work.



Jee's process for pigging projects



Our pigging and plugging services

✦ Pigging

- Pigging feasibility studies
- Pipeline bore mapping (pipeline geometry review)
- Pig / ILI tendering and tool selection
- Tool development and testing support
- Pig design checksheet
- Risk assessment
- Offshore execution management
- Project management

✦ Plugging

- Pipeline bore mapping (pipeline geometry review)
- Isolation tool selection
- Plugging assurance review
- Plugging isolation tool checksheet
- Risk assessment
- Stuck pig guidance
- Verification notes for project documents
- Tool testing support
- Project management

Late life

Adopting an enhanced asset stewardship approach, we help our clients realise the potential of ageing assets and infrastructure by effective through-life management.

When assets are reaching the end of their design life, are no longer economic to run or have become unsafe to operate, we work closely with clients to frame their lifetime extension and decommissioning requirements.

Drawing on our extensive integrity management experience and the expertise of our late life engineers, we help asset owners to understand the condition of their assets and make the most appropriate late life decisions, whether that be lifetime extension or decommissioning.

Lifetime extension

We have supported our clients for over a decade in the justification of continued operation of ageing rigid and flexible pipeline assets beyond design life.

For every lifetime extension assessment that we perform, we quantify the remnant life of the pipeline system based on our assessments, giving the operator confidence in the fitness-for-service of the system until the predicted end of life. Where the assessment is based on assumptions due to a lack



Graham Wilson

MEng (Hons), CEng, MIMechE
Head of Late Life

Graham is an experienced chartered mechanical engineer who has been working in the oil and gas industry since he joined Jee as a graduate in 2004. As Head of Late Life, he is responsible for life extension and decommissioning projects. Graham is also the convener of ISO WG 17 for lifetime extension and primary author of the document.



of available data, timeframes for further inspection activities or assessments required to confirm those assumptions will be specified.

As authors of the ISO TS 12747 for lifetime extension and convenor of the associated ISO working group 17, we have first-hand knowledge and experience of the lifetime extension approaches adopted in the UK. Due to an observed need within the industry, we are currently in the process of updating this document to incorporate the lifetime extension assessment of flexible pipe.

Decommissioning

With over 10 years experience, we have proven track record of reducing the cost and improving the efficiency of decommissioning projects by thinking outside the box and challenging the status quo. Complemented by our extensive experience in the integrity management and lifetime extension of ageing assets, we provide a suite of decommissioning services to support our clients through all stages of a decommissioning project, from initial feasibility studies and cost estimations, through detailed engineering and offshore activities, to project completion and close-out.

We have practical experience in decommissioning project engineering, offshore client representation and topside and jacket removal. We also have experience in live well abandonment and were instrumental in assisting in the development of a grouted pile removal tool.

Our late life services

✦ Lifetime extension

- Full lifetime extension assessment of rigid pipeline and riser systems to ISO TS 12747
- Full lifetime extension assessment of flexible pipeline and riser systems
- Remnant life assessment of both rigid and flexible pipeline systems
- Review and update of PIMS
- DPN / IPR / PWA submission and amendment

✦ Decommissioning

- Material inventory development
- Cost estimation and project date refinement
- Cleanliness assessments and cleaning approach selection
- Decommissioning scoping studies
- Identification and screening of decommissioning approaches
- Stakeholder identification and engagement strategy
- Activity scheduling, sequencing and optimisation

- Contractor identification and tendering support
- Comparative assessment (CA)
- Preparation of environmental impact assessment (EIAs)
- Decommissioning programme development
- Derogation cases
- Liaison with regulatory bodies
- Project / programme management
- Permitting and consents
- Safety case update and update of inspection and maintenance requirements
- Offshore technical representation and support
- Procedure development
- Verification of contractor approaches and procedures
- HAZID / HAZOP
- Inspection and monitoring regimes, including overtrawling trials
- Lessons learnt and procedure update
- Decommissioning best practice and guidance documents

Training

With a global reputation for high quality, effective training, we're the number one trusted partner for companies wanting to ensure their teams have the right competencies for the job.

Jee's combined engineering and training solutions offer a spectrum of services that allow a company to build an entire team from nothing but start delivering on day one: we can offer engineering support plus training and mentoring of your colleagues, right through to reference material for competent engineers to refresh their knowledge on-demand.

In-house training

Designed to fill skill gaps and enhance your team's performance, our in-house courses are cost effective and performance-driven. Whether you need to train a small team, or multiple global teams, our subject matter experts can design a course for your budget and requirements.

We offer flexible training solutions so you can choose the best option for your unique needs. Choose from a standard 'off the shelf' course, customise part of a course or develop a completely bespoke programme to meet specific requirements, incorporating company and project specific information and tailoring to particular geographical areas.

Public courses

Our classroom based courses are regularly held in Aberdeen and Houston and are an ideal solution for small groups or individuals needing to develop their subsea competencies. Mixing theory and practical learning through case studies, group work and exercises, our classroom



courses are led by an experienced tutor who, drawing on their practical experience, brings the subject to life with real-world examples and anecdotes.

Online programmes

With the flexibility to study whenever and wherever, our online courses are cost-effective and let delegates work at their own pace, without taking time out from work or accumulating travel costs.

Whether you need to train a global team or an individual, our online courses are a flexible and accessible approach to cut costs and deliver consistent, simultaneous training. Interactive exercises and quizzes reinforce what's been learnt and make it easy to check progress and test knowledge. Delegates can also network with other learners and discuss any queries with the tutor through online forums and one-to-one support sessions.

Blended learning programmes

We enhance traditional training in the classroom with technology to provide delegates with a deeper, richer and more motivating learning experience. Designed to enhance delegate engagement and collaboration, our blended learning programmes can be delivered completely online, or with a mixture of classroom and online sessions.

Enhanced reference library (ERL)

Jee's ERL is a 'just in time' knowledge transfer tool, allowing engineers to refresh their knowledge quickly through bite sized information. Drawing on over 20 years' of accumulated content from Jee's training courses and over 30 years' engineering expertise, the ERL consists of over 200 engineering topics spanning the whole life-of-field.

The library reduces bottlenecks with seniors by giving engineers a method of finding the information they require, increasing productivity and reducing the time from an issue emerging to its resolution. Contact us for trial access.

A selection of our training courses

- ✦ Advanced design including HP/HT and deepwater pipelines
- ✦ Advanced integrity of deepwater pipelines and risers
- ✦ Construction of subsea pipelines
- ✦ Design of subsea pipelines
- ✦ Installation calculations for subsea pipelines
- ✦ Integrity management of subsea pipelines
- ✦ Marine terminals and landfalls
- ✦ Pigging and plugging
- ✦ Planning, executing and managing decommissioning projects in the North Sea
- ✦ Risers, umbilicals and flexibles
- ✦ Subsea controls
- ✦ Subsea hardware
- ✦ Subsea intervention
- ✦ Subsea pipelines
- ✦ Subsea power cable installation
- ✦ Subsea systems

Contact Jee

Engineering enquiries

Jee provides whole life-of-field engineering services to the oil, gas and renewables industries. To find out more about our services contact us on:

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engineering@jee.co.uk
www.jee.co.uk/engineering

Course enquiries and bookings

Jee provides high calibre courses worldwide.
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