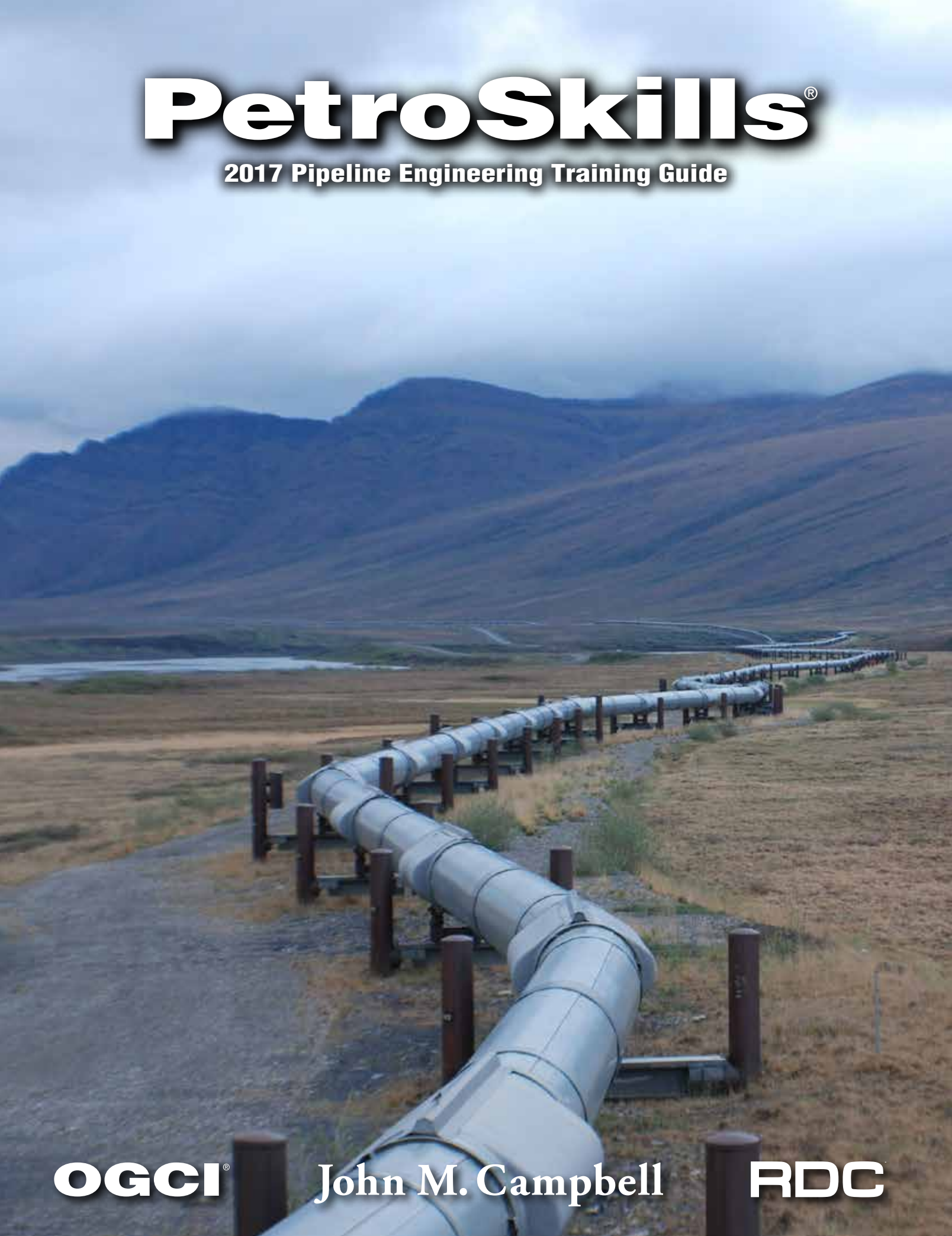
PetroSkills®

2017 Pipeline Engineering Training Guide



OGCI® John M. Campbell RDC

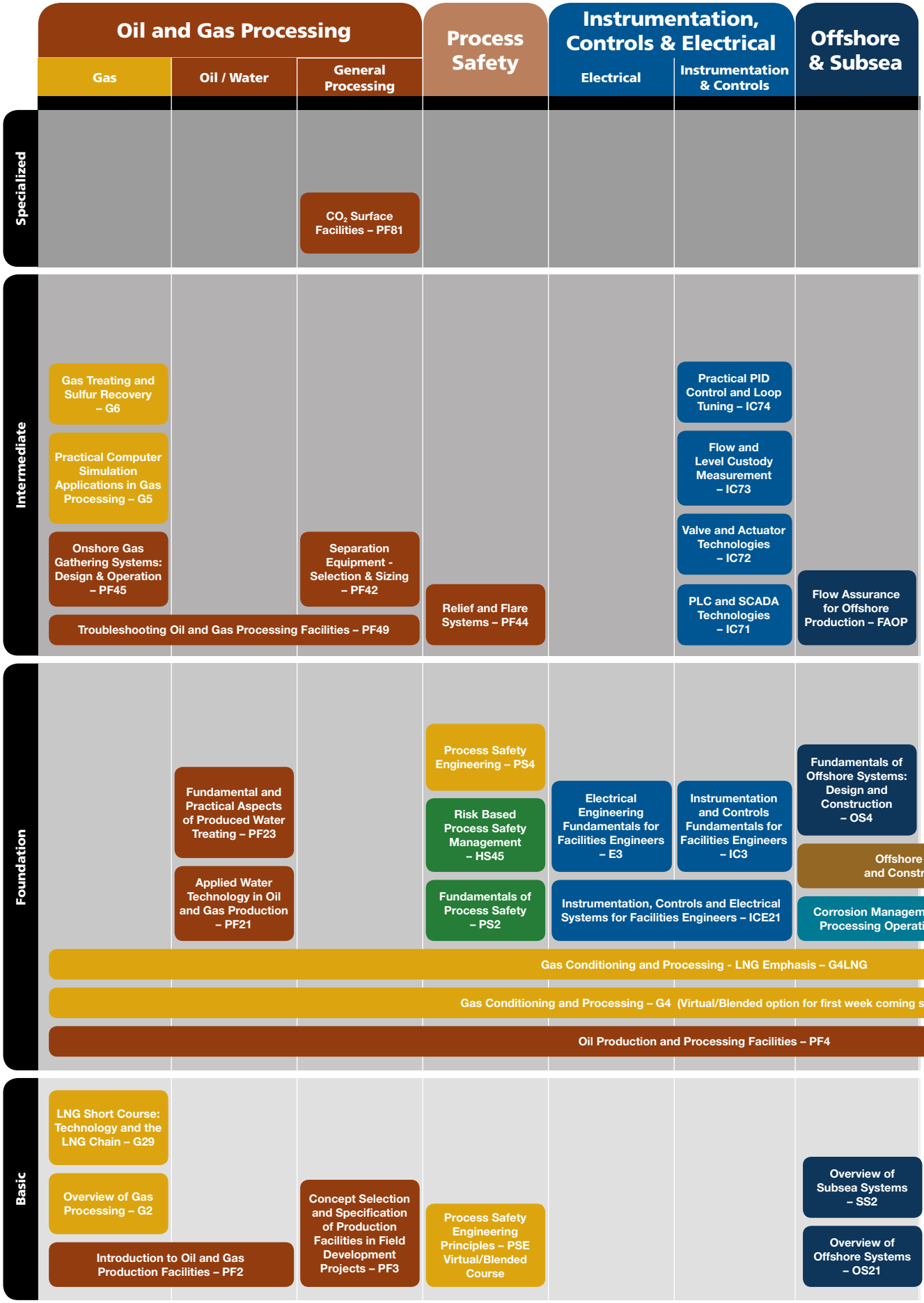
Course Progression Map

Our Pipeline Engineering discipline provides technical training and consulting for oil and gas transportation, focusing on pipeline systems as well as onshore infrastructure systems that support oil and gas operations. The curriculum covers pipeline transportation systems, oil and gas terminal facilities, and the onshore infrastructure from regional considerations through design and construction of site-specific systems. As with all our training programs, these discipline areas integrate with the other technical, operations and HSE disciplines.

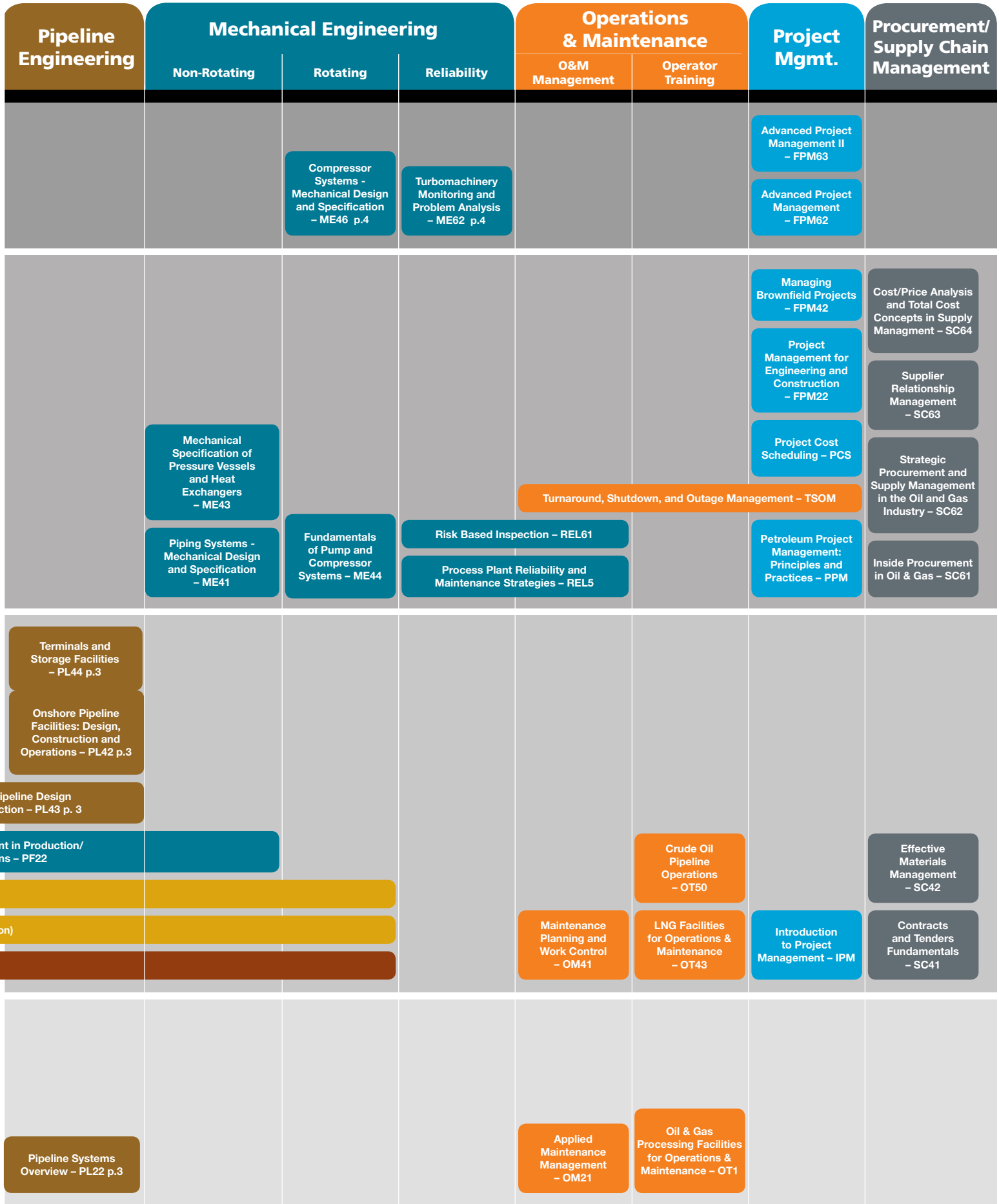
The Instructors and Consultants that support the Pipeline Engineering discipline have extensive real world – global experience from conceptual development through operations. Their broad knowledge blends the unique technical and operational issues of pipeline systems that transport all types of fluids – from heavy oils to refined products to high pressure injection gas and water – into integrated systems. This global experience spans the pipeline industry from initial site selection through detailed design and construction of unique facilities.

The following instructors have been selected and approved by the PetroSkills Curriculum Network:

- Mr. Frank Ashford
- Mr. Jim Beasley
- Mr. Mark Bothamley
- Mr. John Boudron
- Mr. Ronald Frend
- Mr. Josh Gilad
- Dr. Frank Hopf
- Mr. Bob Hubbard
- Mr. Frank Jarrett



Course Progression Map



Pipeline Systems Overview – PL22

BASIC 5-DAY

This course that provides awareness level training for engineers new to the hazardous liquid and gas pipeline industry. The topics include the technical and economic basis for pipeline systems; the key facilities that connect pipelines to the other elements of the hydrocarbon value chain; regulatory and environmental compliance issues; key considerations for public and governmental interaction; project development and construction challenges; and the strategies for safe and efficient pipeline system operations, maintenance, and asset integrity. Case studies are an integral part of this course.

DESIGNED FOR

Recent graduate engineers involved in mid-stream activities of pipeline and terminal design, construction, and operations. It also provides effective grounding for upstream and downstream managers, business development, legal, human resources, finance, land acquisition, and public relations professionals, as well as independent investors interested in a general technically oriented overview of pipeline systems. For pipeline and terminal engineering, and operations supervision and management personnel with 1-3 years of direct experience interested in taking the next step in advancing their breadth of the knowledge, we refer you to PL42, Onshore Pipelines and/or PL44, Terminal Design, Construction and Operations.

YOU WILL LEARN

- Basic concepts of liquid and gas pipeline economics
- Pipeline design overview
- Construction methods and challenges
- Essential operations
- Asset integrity management
- Regulatory and code compliance requirements

COURSE CONTENT

The business model and value-added premise of pipelines and their role in the overall energy value chain • The advantages and limitation of pipelines, and the scope and general structure of the industry • The key components and facilities that are integrated into pipeline systems • How to recognize regulatory codes and industry guidelines (API and others) that control the permitting, design, construction, operations, and maintenance of pipeline facilities • The steps from concept to operating system to abandonment - design, permitting, land acquisition, construction, and startup - with each tied to the key issues for project and operations management • The strategic operational and maintenance needs and options for pipeline systems, including system monitoring and control, leak detection, measurement and quality control, asset integrity management, efficient and safe operations, and emergency response capability

See website for dates and locations

Offshore Pipeline Design and Construction – PL43

FOUNDATION 5-DAY

This intensive five-day foundation level course covers the principal aspects of design, construction, and operations of offshore pipeline systems. The course focuses on pipeline mechanical, strength, and stability design, and construction. Special challenges, such as shoreline crossings, foreign pipeline crossings, repair methods, flow assurance, corrosion and cathodic protection are an integral part of this course. Participants will acquire the essential knowledge and skills to design, construct, and operate pipelines. Design problems and team projects are part of this course.

DESIGNED FOR

Engineers, designers and operators who are actively involved in the design, specification, construction, and operation of offshore pipeline systems.

YOU WILL LEARN HOW TO

- Apply mechanical, strength, and physical principles to pipeline design, material selection, construction, and operation
- Describe the key construction methods
- Define the importance of environmental conditions, construction methods, and pipeline system hydraulics in design, installation, and operations of offshore pipeline systems
- Identify special design and construction challenges of offshore pipeline systems
- Incorporate construction methods into the design of a pipeline system
- Identify the principal interfaces of pipeline facilities, such as platforms, floating production systems, sub-sea wellheads, and SPMs on design, construction, and operations of offshore pipeline systems
- Identify offshore safety and environmental practices and their effect on design, construction, and operations

COURSE CONTENT

Overview of oil and gas transportation systems • Review pipeline hydraulics, focusing on those aspects that affect design, construction, and operations • Pipeline systems definition, survey, and route selection • Safety, environmental, and regulatory considerations, focusing on Codes and Standards related to pipelines • Pipeline conceptual and mechanical design for strength, stability and installation • Pipeline construction for offshore systems and the interrelationships with design and material selection • Pipeline materials and components selection including line pipe, corrosion and cathodic protection, and coatings • Specialized equipment and materials for integrating with subsea wellhead/manifold systems, side taps, insulation, and pipe-in-pipe will be reviewed • Special design and construction considerations for risers and umbilicals, foreign pipeline crossings, single point moorings, and shore approaches • Introduction to flow assurance considerations and pipeline integrity aspects including in-line inspection, leak detection and emergency planning considerations • Pipeline operations, maintenance and repair considerations and their impact on design and material selection

See website for dates and locations

Onshore Pipeline Facilities - Design, Construction and Operations – PL42

FOUNDATION 5-DAY

Successful onshore pipeline businesses require personnel competent in fully integrated approaches to evaluation, planning, design, construction, operations, and asset integrity management. This intensive, 5-day foundation level course explores best practices for developing and maintaining pipeline systems that maximize life cycle reliability; employee, public, and environmental safety; and cost effectiveness. Design and operating exercises are an integral part of this course.

DESIGNED FOR

Pipeline project managers and engineers, operations and maintenance supervisors, regulatory compliance personnel, and other technical professionals with 1-3 years of experience in natural gas, crude oil, refined petroleum products, LPGs, NGL, chemical, carbon dioxide pipeline engineering, construction, operations, or maintenance. This course is intended for participants needing a broad understanding of the planning, development, construction, start-up, and operating and asset integrity management of onshore pipelines.

YOU WILL LEARN HOW TO

- Apply regulatory codes, standards, and industry guidelines (API and others) that control and guide the permitting, design, construction, operation, and maintenance of pipeline facilities
- Apply mechanical and physical principles to pipeline design, hydraulics, and material selection
- Describe the importance of route selection, hydraulics, and pipeline infrastructure for long term profitability, reliability, and safety
- Identify special design and construction challenges of onshore pipeline systems
- Identify the principle interfaces and potential interrelationships of pipeline facilities, such as pump stations and terminals, on design and operations
- Apply operational and maintenance tools and procedures to pipeline systems, including system monitoring and control, leak detection, custody measurement and quality control, asset integrity management, efficient and safe operations, and emergency response capability

COURSE CONTENT

Regulations and code compliance requirements • Pipeline survey and routing • Proper system sizing and design • Equipment selection criteria • Facilities sites and design concern • Construction methods and contracting approaches • Operation and asset integrity management, including Pipeline Safety • Management initiative (API 1173)

2017 Schedule and Tuition (USD)

HOUSTON, US	1-5 MAY	$4150

Terminals and Storage Facilities – PL44

FOUNDATION 5-DAY

This 5-day, foundation level course reviews key issues associated with development, design, construction, and operation of terminals and storage facilities for liquid hydrocarbons and NGLs. The course focuses on six areas: 1) terminal codes and siting constraints, 2) terminal design and equipment layout, 3) types of storage and selection criteria, 4) design considerations for loading racks, fire protection, vapor recovery, blending equipment, and water treatment, 5) detailed design of storage tanks, vessels, and caverns, and 6) operations and maintenance. Safety, quality control, system reliability, availability, and regulatory compliance are integrated throughout the course. Case studies and exercises are used to reinforce key points.

DESIGNED FOR

Project managers, engineers, operations and maintenance supervisors, and regulatory compliance personnel with 1-3 years of experience in planning, engineering, constructing and/or operating terminals and storage facilities for hydrocarbon liquids, NGLs, and petrochemical feedstocks. This course is for participants needing a foundation level understanding of the planning, engineering, construction, operations, and maintenance of storage and terminals connected to pipelines, rail, barges/tankers and/or truck loading facilities.

YOU WILL LEARN

- Storage and terminals basics for hydrocarbon liquids, NGLs, and petrochemical feedstocks
- Design and operation of atmospheric tanks and pressurized bullets and spheres
- Fundamentals of underground storage (salt and rock caverns)
- Safety, product quality, and reliability/ availability concerns

COURSE CONTENT

Sizing criteria and economics for storage and terminal facilities • Various storage types (atmospheric storage tanks, pressure vessels, salt or rock caverns) and appropriate applications • Terminal and tank farm layout constraints • Details of industry codes and standards, plus regulatory and environmental compliance • Selection of equipment for delivery and receipt to/from pipelines, barges and ships, trucks, and rail, including metering options, loading arms, pumps, and control systems • Blending options and equipment, VRU/VCU, water treating, and fire protection • Key factors affecting safety, product quality, system reliability, and profitability in design, construction, and operations • Atmospheric storage tank design, layout, construction, corrosion prevention, and operations covering API 650 and API 653 • Overview of pressure vessel and sphere design and construction • Design, development, and operation of underground cavern storage facilities

2017 Schedule and Tuition (USD)

HOUSTON, US	30 OCT-3 NOV	$4150

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Petrophysics
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Well Construction/Drilling
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Unconventional Resources
Integrated - Heavy Oil
Petroleum Data Management

Facilities

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Process Facilities
Offshore & Subsea
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Mechanical Engineering
Reliability Engineering
Procurement/Supply Chain Management
Refining

Operations & Maintenance

Health, Safety, Environment

Petroleum Business and Professional Development

Petroleum Professional Development
Petroleum Business
Project Management

SIGN UP FOR PETROSKILLS EMAILS