

Asset Integrity Excellence

Forty services across nine disciplines — asset management, asset integrity, materials and corrosion engineering — delivered to the codes and standards our clients are audited against.

Asset Value Maximisation

AVC Engineering is a technical consultancy for asset-intensive operations across oil and gas, refining, petrochemicals, fertilisers, power, renewables and mining. We work from London, Aberdeen, Abu Dhabi and Cairo.

A study is worth only what it changes. Every service in this portfolio is specified to end in an executable decision, plan or limit, with an owner.

SEC.01 · 6 Asset and Integrity Management Systems	SEC.02 · 3 Corrosion Management and Control	SEC.03 · 5 Criticality, Damage Mechanisms and Operating Windows
SEC.04 · 8 Risk-Based Inspection and Inspection Strategy	SEC.05 · 6 Integrity Assessment by Asset Class	SEC.06 · 3 Fitness-for-Service, Remaining Life and Repair
SEC.07 · 4 Materials, Corrosion Engineering and Failure Analysis	SEC.08 · 2 Ageing Assets and Life Extension	SEC.09 · 3 Integrity Performance, Data and Digitalisation

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SEC. 01

Asset and Integrity Management Systems

The management system is what makes integrity repeatable. These services establish the policy, structure, accountabilities and evidence trail that connect a board-level objective to a work order on the plant.

- | | |
|----|---|
| 01 | Asset Management ISO 55000/1 Framework Development and Implementation |
| 02 | Asset Management System (AMS) ISO 55001 Maturity Assessment / Health Check |
| 03 | Asset Integrity Management (AIM) Framework Development and Implementation |
| 04 | Asset Integrity Management System (AIMS) Maturity Assessment / Health Check |
| 05 | Mechanical Integrity Programme Development |
| 06 | Asset Life Cycle Integrity Strategy |

SEC. 02

Corrosion Management and Control

Corrosion remains the dominant cause of loss of containment in process plant. These services establish the policy, the technical basis and the quantified risk picture needed to control it deliberately rather than discover it during inspection.

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|----|--|
| 07 | Corrosion Management Framework (CMF) Development |
| 08 | Corrosion Control Document (CCD) Development |
| 09 | Corrosion Risk Assessment |

SEC. 03

Criticality, Damage Mechanisms and Operating Windows

Every downstream integrity decision depends on knowing what matters most, how it degrades, and the operating limits within which the degradation rate holds. These studies build that foundation.

- | | |
|----|---|
| 10 | Asset Register Criticality Review and Integrity Critical Element Identification |
| 11 | Damage Mechanism Review (DMR) |
| 12 | Corrosion Loop Development and Optimisation |
| 13 | Integrity Operating Windows (IOWs) Development and Implementation |
| 14 | Integrity Threat Assessment |

SEC. 04

Risk-Based Inspection and Inspection Strategy

Inspection is a large, recurring cost that either buys confidence or does not. These services set inspection effort by risk, keep it valid as the plant changes, and convert study output into an executable, auditable plan.

- | | |
|----|---|
| 15 | Risk-Based Inspection (RBI) Studies |
| 16 | RBI Revalidation / RBI Programme Optimisation |
| 17 | Integrity Management Plan / Integrity Assurance Plan |
| 18 | Inspection Planning Optimisation |
| 19 | Inspection Effectiveness Review |
| 20 | Non-Intrusive Inspection (NII) Feasibility Assessment |
| 21 | Written Scheme of Examination (WSE) / Inspection Strategy Development |
| 22 | Shutdown / Turnaround Inspection Workscoping |

SEC. 05

Integrity Assessment by Asset Class

Condition-based verification of the major asset classes, each against its governing code, delivering a defensible position on fitness for continued service and the interval to the next examination.

- | | |
|----|--------------------------------------|
| 23 | Pressure System Integrity Assessment |
| 24 | Pressure Vessel Integrity Assessment |
| 25 | Piping Systems Integrity Assessment |
| 26 | Pipeline Integrity Assessment |
| 27 | Tank Integrity Assessment |
| 28 | Structural Integrity Assessment |

SEC. 06

Fitness-for-Service, Remaining Life and Repair

When equipment is found degraded, the decision to run, repair, rerate or replace should rest on engineering assessment rather than on a code screening rule. These services provide that assessment.

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|----|---|
| 29 | Fitness for Service (FFS) Assessments |
| 30 | Remaining Life Assessment (RLA) |
| 31 | Repair Assessment and Temporary Repair Evaluation |

SEC. 07

Materials, Corrosion Engineering and Failure Analysis

Specialist materials and corrosion engineering, applied both forward to specify the right material for the environment and backward to establish why a component failed and what must change.

- 32 Material Selection Study
- 33 Erosion Assessment and Erosion Risk Review
- 34 Metallurgical Failure Analysis
- 35 Root Cause Failure Analysis (RCFA)

SEC. 08

Ageing Assets and Life Extension

Most producing assets in the Gulf, the North Sea and West Africa are operating beyond their original design life. These services establish the technical basis for continuing safely, and the roadmap for managing ageing deliberately.

- 36 Life Extension Integrity Studies
- 37 Ageing Asset Integrity Review

SEC. 09

Integrity Performance, Data and Digitalisation

Integrity decisions are only as sound as the data behind them and only as visible as the reporting around them. These services address measurement, data quality and the systems that carry both.

- 38 Integrity KPI and Performance Framework Development
- 39 Integrity Data Quality Review and Digitalisation Roadmap
- 40 IDMS / Integrity Software Specification and Implementation Support

HUMAN & AI ENABLED

Beyond Integrity

AVC's AI-based capability converts a validated conventional study into a dynamic programme maintained by software and verified by a qualified engineer.

DELIVERED TO

- ISO 55001
- API 580 / 581
- API 571
- API 584
- API 970
- API 510 / 570 / 653
- API 579
- API 583
- NACE MR0175 / ISO 15156
- ISO 14224
- OSHA PSM

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Reliability & Operational Excellence

Twenty-one services across six disciplines — reliability analysis, maintenance strategy, failure elimination and asset performance management — delivered to the standards our clients are measured against.

Asset Performance Maximisation

AVC Engineering is a technical consultancy for asset-intensive operations across oil and gas, refining, petrochemicals, fertilisers, power, renewables and mining. We work from London, Aberdeen, Abu Dhabi and Cairo.

A study is worth only what it changes. Every service in this portfolio ends in loaded strategy, a tracked action or a measured limit, with an owner.

SEC.01 · 4 Criticality and Reliability Analysis	SEC.02 · 5 Maintenance Strategy and Optimisation	SEC.03 · 4 Failure Elimination and Performance Analysis
SEC.04 · 3 Maintenance Systems, Data and Performance Reporting	SEC.05 · 3 Assurance, Readiness and Major Events	SEC.06 · 2 Asset Performance Management and Integrated Improvement

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SEC. 01

Criticality and Reliability Analysis

The analytical foundation. These four studies establish what matters, how it fails, what maintenance is technically capable of preventing, and what availability the plant can realistically be expected to deliver.

- | | |
|----|---|
| 01 | Criticality Assessment for Assets and Equipment |
| 02 | Failure Modes, Effects and Criticality Analysis (FMEA / FMECA) |
| 03 | Reliability-Centred Maintenance (RCM) Study |
| 04 | Reliability, Availability and Maintainability (RAM) and Production Availability Modelling |

SEC. 02

Maintenance Strategy and Optimisation

What the organisation believes about maintenance, expressed as executable strategy, and then made efficient. These five services build the strategy, optimise what already exists, and set the condition monitoring and spares provision that support it.

- | | |
|----|--|
| 05 | Maintenance Philosophy Development |
| 06 | Equipment Strategy Development |
| 07 | Maintenance Strategy and Preventive Maintenance Optimisation (PMO) |
| 08 | Condition Monitoring and Predictive Maintenance Strategy and Roadmap |
| 09 | Spare Parts Criticality and Optimisation Study |

SEC. 03

Failure Elimination and Performance Analysis

Where the losses actually are, why they keep happening, and whether the organisation is getting better. These four services turn maintenance history into a ranked, quantified improvement agenda.

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|----|--|
| 10 | Bad Actor and Chronic Failure Analysis |
| 11 | Defect Elimination Programme Development |
| 12 | Downtime, Loss and Reliability Growth Analysis |
| 13 | Maintenance Backlog Analysis and Optimisation |

SEC. 04

Maintenance Systems, Data and Performance Reporting

Every analysis in this portfolio is built on the maintenance system and the data inside it. These three services establish whether that foundation can carry the weight being placed on it.

- 14 Asset Hierarchy and Maintenance Taxonomy Review
- 15 Computerised Maintenance Management System (CMMS) Health Check
- 16 Maintenance KPI Framework and Dashboard Design

SEC. 05

Assurance, Readiness and Major Events

Independent assurance at the three moments where maintenance and reliability performance is decided: the periodic health check, the transition from project to operations, and the turnaround.

- 17 Maintenance and Reliability Maturity Assessment
- 18 Operational Readiness and Assurance (OR&A) Study
- 19 Turnaround and Shutdown Assurance Planning

SEC. 06

Asset Performance Management and Integrated Improvement

The integrating layer. These two services connect the individual reliability, maintenance and integrity processes into one system, and deliver the improvement programme that follows from it.

- 20 Asset Performance Management Framework
- 21 Integrated Asset Performance Improvement Study

SEQUENCE MATTERS

Maintenance Excellence Pyramid

Capability is built in order: work management and data first, then planning, loss analysis and condition monitoring, then criticality and strategy, then optimisation and life cycle cost.

DELIVERED TO

- SAE JA1011 / JA1012
- IEC 60812
- ISO 14224
- ISO 20815
- ISO 15663
- ISO 17359
- ISO 13374
- ISO 18436
- EN 13306
- API 691
- ISO 55001



Process Safety Excellence

Forty-three services across eight disciplines — hazard identification, protection layers, consequence modelling, barrier management and regulatory demonstration.

Major Accident Prevention

AVC Engineering is a technical consultancy for asset-intensive operations across oil and gas, refining, petrochemicals, fertilisers, power, renewables and mining. We work from London, Aberdeen, Abu Dhabi and Cairo.

The eight sections follow the chain by which a major accident is prevented. Every service ends in an action, a limit, a specification or a demonstration with an owner — not in a report.

SEC.01 · 6 Process Safety Management Systems and Assurance	SEC.02 · 5 Hazard Identification and Process Hazard Analysis	SEC.03 · 4 Protection Layers, Functional Safety and Human Factors
SEC.04 · 5 Operational, Transient and Change Risk	SEC.05 · 6 Consequence Modelling and Quantitative Risk	SEC.06 · 9 Safety Systems, Relief and Fire Protection
SEC.07 · 3 Barrier Management and Safety Critical Elements	SEC.08 · 5 Safety Cases and Regulatory Demonstration	43 SERVICES 8 SECTIONS

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SEC. 01

Process Safety Management Systems and Assurance

The system that makes process safety repeatable rather than dependent on individuals. These six services establish the framework, measure it honestly, and test whether it is working.

- | | |
|----|---|
| 01 | Process Safety Management (PSM) Framework Development |
| 02 | Process Safety Baseline, Maturity and Gap Assessment |
| 03 | Independent Process Safety Review and Audit |
| 04 | Process Safety Culture and Governance Review |
| 05 | Process Safety KPI Framework |
| 06 | Incident Investigation and Process Safety Root Cause Analysis |

SEC. 02

Hazard Identification and Process Hazard Analysis

The studies that establish what can go wrong. Everything downstream — protection layers, consequence modelling, the safety case — depends on the completeness of this work, and on it being kept current.

- | | |
|----|---|
| 07 | Hazard Identification (HAZID) |
| 08 | HAZOP Study and HAZOP Revalidation |
| 09 | Process Hazard Analysis — What-If, Checklist and Structured Reviews |
| 10 | Inherently Safer Design (ISD) Review |
| 11 | Major Accident Hazard Identification, Bowtie Analysis and Hazard Register Development |

SEC. 03

Protection Layers, Functional Safety and Human Factors

The layers that stand between a deviation and a major accident — instrumented, procedural and human — assessed for whether they are independent, adequate and capable of being delivered by the people relied upon.

- | | |
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| 12 | Layer of Protection Analysis (LOPA) and Safety Integrity Level Determination |
| 13 | SIL Verification and Safety Instrumented Function Assessment |
| 14 | Alarm Management Philosophy and Rationalisation |
| 15 | Human Factors in Process Safety and Safety Critical Task Analysis |

SEC. 04

Operational, Transient and Change Risk

Most process safety systems are built around steady-state operation. These five services address the conditions where the majority of incidents actually occur — transients, temporary arrangements, concurrent activities and change.

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|----|---|
| 16 | Operational Risk Assessment |
| 17 | Simultaneous Operations (SIMOPS) Risk Assessment |
| 18 | Transient and Temporary Operations Risk Review |
| 19 | Management of Change (MoC) Risk Review |
| 20 | Procedure Criticality and Operational Safeguards Review |

SEC. 05

Consequence Modelling and Quantitative Risk

The quantified layer. Physical effects modelling and risk analysis that convert identified hazards into distances, loads, impairment frequencies and risk figures a design decision or a regulator can be held to.

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| 21 | Consequence Modelling — Flammable, Toxic and Smoke Dispersion |
| 22 | Fire and Explosion Risk Assessment (FERA) and Explosion Overpressure Analysis |
| 23 | Quantitative Risk Assessment (QRA) and Loss of Containment Risk Assessment |
| 24 | Escape, Evacuation and Rescue Analysis (EERA) and Temporary Refuge Impairment Study (TRIS) |
| 25 | Occupied Building Risk Assessment (OBRA) and Facility Siting Study |
| 26 | Dropped Object Study |

SEC. 06

Safety Systems, Relief and Fire Protection

The engineered layers of defence. These nine services verify that relief, depressurisation, detection, isolation and fire protection systems are adequate for the scenarios they will actually see, and that their impairment is controlled.

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|----|--|
| 27 | Relief and Blowdown Study and Pressure Relief System Design Basis Review |
| 28 | Emergency Depressurisation and Flare System Adequacy Study |
| 29 | Hazardous Area Classification and Ignition Source Assessment |
| 30 | Detection and Shutdown Philosophy Review |
| 31 | Isolation Philosophy Review |
| 32 | Passive Fire Protection and Fireproofing Adequacy Review |
| 33 | Active Fire Protection Philosophy and Firewater Adequacy Study |
| 34 | Safety System Impairment Risk Assessment |
| 35 | Emergency Response Basis of Design and Emergency Systems Review |

SEC. 07

Barrier Management and Safety Critical Elements

The system that turns identified barriers into named equipment with written performance standards, a verification scheme and evidence that they still work. Three services, and the backbone of any safety case regime.

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|----|--|
| 36 | Safety Critical Element Identification and Performance Standards Development |
| 37 | Barrier Management and Barrier Health Assurance Framework |
| 38 | Verification Scheme Development and Independent Competent Person Interface |

SEC. 08

Safety Cases and Regulatory Demonstration

The formal demonstration to a regulator, a board or a partner that major accident risk is understood and controlled. Five services covering the full safety case lifecycle, from first submission to gap closure and decommissioning.

- | | |
|----|--|
| 39 | Safety Case Development, Update and Revision |
| 40 | ALARP Demonstration, Formal Safety Assessment and Regulatory Compliance |
| 41 | COMAH and Onshore Major Hazard Safety Report, MAPP and Installation Dossier |
| 42 | Bridging, Combined Operations, Modification and Decommissioning Safety Cases |
| 43 | Safety Case Gap Closure Programme |

THE PART THAT FAILS FIRST

Traceability, both directions

A regulator, an insurer or a court will ask how a claim in the safety case is supported by the study beneath it, and how the safeguard that study credited is tested in the field. AVC builds that chain deliberately.

DELIVERED TO

- | | |
|-----------------------|---------------|
| CCPS RBPS | OSHA 1910.119 |
| COMAH / Seveso III | IEC 61882 |
| IEC 61511 | IEC 61508 |
| EEMUA 191 / IEC 62682 | API RP 754 |
| IOGP 456 | API 520 / 521 |
| ISO 15544 | NORSOK Z-013 |



Health, Safety & Environment

Twenty-one services across five disciplines — management systems and assurance, environment and climate, safe systems of work, occupational health, and high-risk activity management.

Licence to Operate

AVC Engineering is a technical consultancy for asset-intensive operations across oil and gas, refining, petrochemicals, fertilisers, power, renewables and mining. We work from London, Aberdeen, Abu Dhabi and Cairo.

Environmental and safety performance is now a licence-to-operate and a financing condition rather than a compliance cost. Every service here ends in an action, a limit or a demonstration with an owner.

SEC.01 · 6 HSE Management Systems, Governance and Assurance	SEC.02 · 5 Environment, Climate and Resource Management	SEC.03 · 4 Safe Systems of Work and Operational HSE Risk
SEC.04 · 2 Occupational Health and Industrial Hygiene	SEC.05 · 4 High-Risk Activity Management and Emergency Preparedness	21 SERVICES 5 SECTIONS

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SEC. 01

HSE Management Systems, Governance and Assurance

The system that holds health, safety and environmental performance in place, and the honest measurement of whether it is working. These six services build the framework, test it, and put numbers against it.

- | | |
|----|--|
| 01 | HSE Management System and Governance Framework Development |
| 02 | Corporate HSE Baseline Assessment, Compliance Audit and Gap Analysis |
| 03 | HSE Risk Register Development |
| 04 | HSE and Environmental Due Diligence |
| 05 | HSE Culture Maturity Assessment |
| 06 | HSE KPI and Assurance Framework Development |

SEC. 02

Environment, Climate and Resource Management

Environmental performance is increasingly a licence-to-operate and a financing condition rather than a compliance cost. These five services cover assessment and permitting, remediation, and the resource and carbon questions now being asked of every asset.

- | | |
|----|---|
| 07 | Environmental Impact Assessment, Permitting, Baseline Surveys and Compliance Monitoring |
| 08 | Environmental Remediation |
| 09 | Waste Minimisation and Management |
| 10 | Water Optimisation Assessment |
| 11 | Climate Change and Decarbonisation Advisory |

SEC. 03

Safe Systems of Work and Operational HSE Risk

The controls that govern how work is actually authorised and executed, and the HSE risk created by projects, brownfield activity and the contractors who deliver most of it.

- | | |
|----|--|
| 12 | Permit to Work and Task Risk Assessment Framework Review |
| 13 | Construction, Brownfield and Simultaneous Operations HSE Risk Assessment |
| 14 | Commissioning and Operational HSE Readiness Review |
| 15 | Contractor HSE Management Review |

SEC. 04

Occupational Health and Industrial Hygiene

The exposures that harm people slowly, produce no incident report, and become visible as liability years after the exposure occurred. Two services covering assessment and the ongoing programme.

- | | |
|----|--|
| 16 | Occupational Health Hazard Assessment and Industrial Hygiene Baseline Survey |
| 17 | Workplace Exposure Assessment Strategy and Health Surveillance Programme |

SEC. 05

High-Risk Activity Management and Emergency Preparedness

The activities that account for most industrial fatalities, and the arrangements for when prevention has already failed. Four services covering the controls that have to work first time.

- | | |
|----|--|
| 18 | Confined Space and Working at Height Risk Management Framework |
| 19 | Lifting Operations and Dropped Objects Management Study |
| 20 | Transport and Road Risk Management Study |
| 21 | Emergency Preparedness, Response and Crisis Management Review |

MEASURED HONESTLY

Leading, not only lagging

An organisation can drive its recordable rate down while its exposure to a fatality or a major environmental event remains unchanged. AVC builds frameworks that measure the condition of the controls.

DELIVERED TO

- | | | |
|---------------------------|--------------|----------------|
| ISO 45001 | ISO 14001 | ISO 45003 |
| IOGP 510 | IOGP 423 | |
| IFC Performance Standards | | |
| Equator Principles | GHG Protocol | |
| ISO 14064-1 | ISO 14046 | EN 689 / ACGIH |
| TCFD | | |



Energy Management Excellence

Twenty-five services across five disciplines — energy management systems, performance baselines, process and utility optimisation, business case delivery and decarbonisation.

Energy Performance Maximisation

AVC Engineering is a technical consultancy for asset-intensive operations across oil and gas, refining, petrochemicals, fertilisers, power, renewables and mining. We work from London, Aberdeen, Abu Dhabi and Cairo.

Energy is one of the largest controllable operating costs in a process plant, and one of the few that also carries a carbon consequence, a regulatory exposure and a financing condition.

SEC.01 · 3 Energy Management Systems and Governance	SEC.02 · 5 Energy Performance Baseline, Data and Diagnostics	SEC.03 · 9 Process and Utility System Optimisation
SEC.04 · 4 Opportunity Development, Business Case and Delivery	SEC.05 · 4 Decarbonisation and Net-Zero Energy	25 SERVICES 5 SECTIONS

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SEC. 01

Energy Management Systems and Governance

Energy performance improves and then decays unless something holds it in place. These three services build the strategy, the management system and the honest assessment of how far the organisation has actually got.

- | | |
|----|--|
| 01 | Energy Management Strategy, Policy, Governance and Target Setting |
| 02 | ISO 50001 Energy Management System Development, Implementation and Certification Support |
| 03 | ISO 50001 Gap and Maturity Assessment — Energy Management Health Check |

SEC. 02

Energy Performance Baseline, Data and Diagnostics

You cannot manage what you have not measured, and most sites have never measured it properly. These five services establish where the energy goes, what good looks like, whether the data can be trusted, and where the losses are.

- | | |
|----|---|
| 04 | Energy Review, Energy Balance and Significant Energy Use Assessment |
| 05 | Energy Baseline and Energy Performance Indicator Development |
| 06 | Metering, Sub-Metering and Energy Data Quality Assessment |
| 07 | Energy Benchmarking and Performance Gap Assessment |
| 08 | Industrial Energy Audit and Energy Performance Diagnostics |

SEC. 03

Process and Utility System Optimisation

Where the energy is actually consumed and lost. Nine studies covering the process itself, the heat recovery network, each major utility system, and the equipment degradation that quietly raises consumption every year.

- | | |
|----|--|
| 09 | Process Energy Optimisation |
| 10 | Heat Integration, Pinch Analysis and Waste Heat Recovery |
| 11 | Steam and Condensate System Optimisation |
| 12 | Fired Equipment Efficiency — Boilers, Furnaces and Heaters |
| 13 | Rotating Equipment and Motor-Driven System Optimisation |
| 14 | Compressed Air, Cooling, Refrigeration and HVAC Optimisation |
| 15 | Electrical System and Power Demand Optimisation |
| 16 | Site Utility System Optimisation and Utility Balance |
| 17 | Equipment Operating Efficiency and Maintenance—Energy Optimisation |

SEC. 04

Opportunity Development, Business Case and Delivery

Turning identified savings into funded projects and then into verified performance. Four services covering the path from opportunity register to a benefit the finance function recognises.

- | | |
|----|--|
| 18 | Energy Conservation Measure Identification, Screening and Prioritisation |
| 19 | Techno-Economic Feasibility and Investment Appraisal |
| 20 | Energy Improvement Programme and Implementation Roadmap |
| 21 | Measurement and Verification and Benefits Realisation |

SEC. 05

Decarbonisation and Net-Zero Energy

Energy efficiency is the first and cheapest abatement lever, and the one most often skipped in the rush to new technology. These four services build the energy-led route to a credible decarbonisation position.

- | | |
|----|--|
| 22 | Energy-Related Emissions Reduction and Carbon Abatement Prioritisation |
| 23 | Renewable Energy Integration Assessment |
| 24 | Electrification and Fuel-Switching Studies |
| 25 | Industrial Decarbonisation and Net-Zero Energy Roadmap |

PERFORMANCE, NOT PAPERWORK

ISO 50001 is a performance standard

The organisation must demonstrate continual improvement in energy performance, not merely that it has a system. Systems built to pass an audit fail that test at the first surveillance visit.

DELIVERED TO

- | | | |
|----------------|----------------------|-----------|
| ISO 50001:2018 | ISO 50002 | ISO 50004 |
| ISO 50006 | ISO 50015 | EN 16247 |
| IPMVP | ISO 14414 | ISO 11011 |
| API 560 | Solomon benchmarking | |

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AVC Academy

Fifty-three courses across eight pathways, running from Level I foundations through Level II practitioner courses to Level III specialist and leadership content.

Taught by the people
who do the work

AVC Engineering is a technical consultancy for asset-intensive operations across oil and gas, refining, petrochemicals, fertilisers, power, renewables and mining. We work from London, Aberdeen, Abu Dhabi and Cairo. The Academy catalogue is drawn directly from the five service portfolios AVC delivers, plus a pathway in applied artificial intelligence.

Every course is taught by practitioners who deliver that work commercially. We do not teach subjects we do not practise.

AMP · 4 Asset Management Professional	AIP · 8 Asset Integrity Professional	CMP · 4 Corrosion and Materials Professional
RMP · 8 Reliability and Maintenance Professional	PSP · 9 Process Safety Professional	HSP · 8 HSE Professional
EMP · 6 Energy Management Professional	AAI · 6 Applied Artificial Intelligence for Industrial Operations	53 COURSES 8 PATHWAYS

ALIGNED TO

IAM Certificate & Diploma

AMPP certification

API inspector certifications

IEC 61511 functional safety

MSc with University of Aberdeen

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PATHWAY 01 • AMP

Asset Management Professional

For engineers and managers accountable for asset strategy, investment planning and the ISO 55001 management system. Progresses from the principles of asset management to leading a certification programme and owning whole-life investment decisions.

LEVEL I – FOUNDATION

AMP-101 Asset Management Foundations

LEVEL II – PRACTITIONER

AMP-201 Building and Implementing an Asset Management System

AMP-202 Asset Management Maturity Assessment and Improvement Planning

LEVEL III – SPECIALIST

AMP-301 Asset Life Cycle Strategy and Life Cycle Costing

PATHWAY 02 • AIP

Asset Integrity Professional

The technical core of the Academy, and the pathway with the widest demand. Runs from damage mechanisms and integrity fundamentals through risk-based inspection practice to fitness-for-service and life extension. Level III courses articulate with the MSc-level programme delivered with the University of Aberdeen.

LEVEL I – FOUNDATION

AIP-101 Asset Integrity Management Foundations

AIP-102 Damage Mechanisms in Process Plant

LEVEL II – PRACTITIONER

AIP-201 Corrosion Loops, Monitoring Locations and Integrity Operating Windows

AIP-202 Risk-Based Inspection Practitioner

AIP-203 Inspection Strategy, Planning and Effectiveness

AIP-204 Pressure Equipment, Piping and Tank Integrity Assessment

LEVEL III – SPECIALIST

AIP-301 Fitness-for-Service and Remaining Life Assessment

AIP-302 Ageing Asset Management and Life Extension

PATHWAY 03 • CMP

Corrosion and Materials Professional

For corrosion engineers, materials engineers and the integrity personnel who depend on their output. Runs from corrosion fundamentals to failure analysis, and articulates with AMPP certification where participants are pursuing it.

LEVEL I – FOUNDATION

CMP-101 Corrosion Fundamentals for Process Plant

LEVEL II – PRACTITIONER

CMP-201 Corrosion Management Frameworks and Corrosion Control Documents

CMP-202 Materials Selection for Oil and Gas Service

LEVEL III – SPECIALIST

CMP-301 Metallurgical Failure Analysis and Root Cause Investigation

PATHWAY 04 • RMP

Reliability and Maintenance Professional

For reliability engineers, maintenance engineers, planners and the supervisors who execute the strategy. Built on AVC's Maintenance Excellence Pyramid, which sequences capability in the order it has to be developed — work management and data first, then analysis, then optimisation.

LEVEL I – FOUNDATION

RMP-101 Maintenance and Reliability Foundations

RMP-102 Criticality Assessment and Asset Hierarchy

LEVEL II – PRACTITIONER

RMP-201 FMECA and Reliability-Centred Maintenance Practitioner

RMP-202 Preventive Maintenance Optimisation and Equipment Strategy

RMP-203 Condition Monitoring and Predictive Maintenance

RMP-204 Defect Elimination, Bad Actor Analysis and RCFA

RMP-205 Work Management, CMMS and Maintenance Data

LEVEL III – SPECIALIST

RMP-301 RAM Modelling and Production Availability

PATHWAY 05 • PSP

Process Safety Professional

For process, operations and safety engineers with responsibility for major accident hazards, and for the leaders who accept the residual risk. Runs from process safety fundamentals through study facilitation and functional safety to quantitative risk and safety case demonstration.

LEVEL I – FOUNDATION

PSP-101	Process Safety Management Fundamentals
PSP-102	Hazard Identification and HAZID Facilitation

LEVEL II – PRACTITIONER

PSP-201	HAZOP Leadership and Facilitation
PSP-202	LOPA and Safety Integrity Level Determination
PSP-203	Functional Safety and SIL Verification
PSP-204	Bowtie Analysis and Barrier Management
PSP-205	Relief, Blowdown and Flare Systems

LEVEL III – SPECIALIST

PSP-301	Consequence Modelling and Quantitative Risk Assessment
PSP-302	Safety Case Development and ALARP Demonstration

PATHWAY 06 • HSP

HSE Professional

For HSE practitioners, line managers and the supervisors who authorise hazardous work. Focused on the controls that actually prevent harm rather than on documentation, and taught with the worksite verification discipline AVC applies in its audits.

LEVEL I – FOUNDATION

HSP-101	HSE Management Systems
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LEVEL II – PRACTITIONER

HSP-201	Permit to Work, Task Risk Assessment and Safe Systems of Work
HSP-202	Occupational Health and Industrial Hygiene Essentials
HSP-203	High-Risk Activity Management
HSP-204	Contractor HSE Management
HSP-205	Emergency Preparedness, Response and Crisis Management
HSP-206	Environmental Management and Compliance for Industrial Operations

LEVEL III – SPECIALIST

HSP-301	HSE Assurance, Audit and Due Diligence
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PATHWAY 07 • EMP

Energy Management Professional

For process engineers, utility engineers and energy managers accountable for consumption, cost and the energy contribution to decarbonisation. Grounded in the reconciled energy balance rather than in reporting, and delivered by practitioners who optimise plants for a living.

LEVEL I – FOUNDATION

EMP-101	Industrial Energy Management Foundations
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LEVEL II – PRACTITIONER

EMP-201	Energy Auditing and Performance Diagnostics
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EMP-202	Energy Baselines, Performance Indicators and Measurement and Verification
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EMP-203	Utility System Optimisation
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LEVEL III – SPECIALIST

EMP-301	Pinch Analysis and Heat Integration
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EMP-302	Industrial Decarbonisation and Net-Zero Pathways
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PATHWAY 08 • AAI

Applied Artificial Intelligence for Industrial Operations

The Academy's newest pathway. It teaches AI as an engineering tool applied to asset, energy and safety problems — what it can do, what it cannot, what data it requires, and how to govern it in an environment where a wrong answer has physical consequences.

LEVEL I – FOUNDATION

AAI-101	Artificial Intelligence Fundamentals for Engineers and Managers
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LEVEL II – PRACTITIONER

AAI-201	Industrial Data Foundations for AI
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AAI-202	AI for Asset Integrity and Reliability
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AAI-203	Energy AI — Machine Learning for Energy Performance and Decarbonisation
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AAI-204	AI Governance, Assurance and Risk for Industrial Deployment
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LEVEL III – SPECIALIST

AAI-301	Generative and Agentic AI in Engineering Practice
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DEPTH, NOT SENIORITY

A Level III course assumes the Level II content of its pathway; participants entering from another discipline are placed by a short competency screen rather than by job title. Delivered in-company, in open enrolment cohorts, and virtually where the content permits.

HEADQUARTER

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