

TECNOADMIN CONSULTING

Project Track Record & Capability Report · 1992 – 2026

Martin Obando Loor

Electrical Engineer (ESPOL) · MBA (ESPAE) · PhD candidate, Universidad de Querétaro (Mexico), 2026–2029
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PROFESSIONAL PROFILE

Martin Obando has 34 years of experience in the planning, control and management of civil and electromechanical projects, of which the last 19 have been dedicated almost entirely to mining and metallurgical developments. He has held roles as project manager, construction manager, project control manager and lead planner on programmes ranging from USD 5 million to USD 5 billion, across ten countries.

His practice covers the full control cycle: baseline development and rolling-wave planning, critical-path and earned-value control, contractor schedule acceptance, probabilistic scheduling and quantitative risk analysis (P50/P80), 4D construction simulation, and the set-up and audit of project control systems and PMOs. He also practises forensic schedule and delay analysis in support of contract claims — a discipline he entered in 1992 with Construction Interface Inc. and continues today alongside legal counsel — most recently in an arbitration over a hydroelectric plant built in Ecuador, decided in the client's favour in July 2025, and in the ongoing rebuttal of a contractor's claim at Nexa's Cerro Lindo mine.

A distinct and growing part of the practice is independent schedule assurance: being engaged by owners to review, test and comment on programmes prepared by others — the audit of the Nueva Centinela schedules for Antofagasta Minerals, and the role of schedule reviewer on the Independent Project Reviews (IPR) of the Vicuña and Escondida project portfolios for BHP and of the Resolution Copper project.

A second area of expertise is **artificial intelligence**: Martin specialises in AI-assisted software development, and it is that capability which allowed a consulting practice — not a software house — to design, build and deploy a full product line in six months, described under Proprietary digital products below.

PORTFOLIO AT A GLANCE

Summary	
Span of practice	1992 – 2026 · 34 years
Projects supported	70+ projects, studies and due diligences

Summary	
Countries	Ecuador, Peru, Chile, Argentina, Colombia, Brazil, Uruguay, El Salvador, Canada, United States
Sectors	Mining and metallurgy · Hydroelectric and power · Oil and gas · Airports and ports · Water and sanitation · Urban infrastructure · Buildings and hospitality · Defence facilities
Largest programmes	Vicuña capital portfolio, BHP (USD 17 BB — IPR) · Nueva Centinela, AMSA (USD 5 BB) · Las Bambas Stage II (USD 2.8 BB) · Coca Codo Sinclair (USD 2,500 MM) · Gran Colombia Gold–Silver (USD 1.2 BB) · Fosfatos del Pacífico (USD 900 MM) · Milpo master feasibility (USD 700 MM) · Fruta del Norte (USD 692 MM)
Owners and majors served	BHP · Antofagasta Minerals · Nexa Resources · Barrick · Antamina · Lundin Gold · Southern Peru Copper (SPCC) · Volcan · Milpo · Minera Las Bambas · Antapaccay · Aceros Arequipa · Fosfatos del Pacífico · Gmining · BP · EnCana · Odebrecht · US Army Corps of Engineers
Core services	Schedule development and control · Independent Project Review (IPR) and schedule audit · Project control set-up · Probabilistic scheduling and risk (P50/P80) · 4D construction simulation · Claims and forensic delay analysis · PMO implementation
Toolset	Primavera P6 and P3 · Primavera Risk Analysis · Contract Management / Expedition · Microsoft Project · Navisworks and Synchro 4D · Opus · SAP · QuickBooks

PART A · CURRENT ENGAGEMENTS (2024 – 2026)

Work carried out since the last revision of the curriculum vitae.

Period	Project / Client	Country	Capital value	Role and contribution
Jul 2026 – present	Cerro Lindo Extension of Time & Acceleration Claim — Contract Coupa 1150 · Nexa Resources	Peru	USD 6.31 MM claimed	Schedule and delay expert on the owner's side, preparing the rejoinder to the contractor's extension of time and acceleration claim. Applied windows delay analysis to the contemporaneous programme updates — dividing the works into analysis windows to establish what actually drove the critical path in each period — and tested the asserted entitlement against the contract and the contemporaneous project record. Engaged directly by Nexa, ongoing since July 2026.
Mar – Jul 2026	Resolution Copper project — Independent Project Review (IPR) · Rio Tinto / BHP, through BedRock Services	USA	USD 14 BB	Schedule reviewer on the Independent Project Review of the Resolution Copper project: reviewed and formally commented the programmes prepared by the project teams — schedule structure and logic, critical path, duration basis and interface consistency — with observations returned to the owner as part of the IPR governance process.
February 2026	Vicuña project portfolio — Independent Project Review (IPR) · BHP, through BedRock Services	Argentina / Chile	USD 17 BB	Schedule reviewer on BHP's Independent Project Review of the Vicuña portfolio, a capital portfolio of USD 17 billion. Assessed programme structure, logic, critical path, duration basis and interface consistency across the constituent projects, and issued formal review comments to the owner as part of the IPR governance process.
December 2025	Escondida project portfolio —	Chile	USD 10 BB	Same IPR role at the world's largest copper operation: five Escondida programmes were

Period	Project / Client	Country	Capital value	Role and contribution
	Independent Project Review (IPR) · BHP, through BedRock Services			reviewed and formally commented — schedule logic and structure, critical path, duration basis and interface consistency across the portfolio — with observations returned to the owner's project teams.
Nov 2025 – present	El Porvenir and Atacocha mines (Pasco complex) – capital works programme · Nexa Resources (consultant to the owner; contractor: Construplan)	Peru	USD 80 MM	Owner's planning and project control consultant on a multi-package programme across both operations: LB2 Pumping System, Tailings Storage Facility (Relavera) Phase 2, and relocation of the 60 kV transmission line. Produced the works baseline, critical path, duration basis, S-curve, resource histogram and commodity curves (excavation, fill, 10/28 MPa concrete, reinforcing steel, CS tailings pipeline, HDPE wash-water pipeline, cabling), plus the WBS and the Nexa–Construplan free-issue supply interface, and reviews the contractor's programme on the owner's behalf.
2026 – present	Integrated Project Control Panel · Nexa Resources (Pasco complex)	Peru	n/a (services)	Designed and deployed a web-based integrated control panel consolidating schedule, progress and document-control status (CR/RS/TR series) into a single management view, replacing manual report assembly. Built on Tecnoadmin's own reporting platform (see Proprietary Digital Products).
Mar 2025 – Apr 2025	Nueva Centinela project – schedule audit · Antofagasta Minerals (AMSA), through BedRock Services	Chile	USD 5 BB	Independent audit of the project schedules on one of the largest copper developments currently in execution. Reviewed the programme across the study work breakdown — legal framework, land tenure and permitting; mineral processing; and external affairs and communities — testing logic, critical path, duration basis and interface consistency between work streams, and reported findings and corrective recommendations to the owner.
Sep 2024 – Jul 2025	International arbitration – Sabanilla hydroelectric plant · Estudio Jurídico Pino Elizalde	Ecuador (deposition heard in Chile)	USD 2 MM in dispute	Schedule and delay expert supporting counsel in an arbitration arising from the construction of the Sabanilla hydroelectric plant in Ecuador. Reconstructed the as-built programme from the contemporaneous record, quantified delay and productivity loss, and prepared the technical exhibits relied on by counsel. The deposition was heard in Chile in July 2025 and the case was decided in favour of the firm's client.
Apr 2024 – present	El Domo (Curipamba) polymetallic project · BedRock Services, Canada	Ecuador	USD 300 MM	Project Scheduling and Project Control Services. Returned to Ecuador specifically for El Domo, a project supported since 2023, carrying forward the execution schedule and controls framework built at feasibility stage into the construction phase.

PART B · MINING, EPCM AND CONSULTING (2007 – 2024)

Period	Project / Client	Country	Capital value	Role and contribution
Jan 2024 – Mar 2024	Escuelas Bicentenario public-investment programme · MACE Perú	Peru (Lima)	≈ USD 1.6 BB	Lead Planner. Led the planning team in Lima and audited the processes in use for project control and monitoring, issuing recommendations to align them with programme requirements. The programme covers 75 schools across nine regions and 21 districts of Metropolitan Lima, with a published State investment of S/ 5,949 million (approximately USD 1.6 billion).
Jun 2023 – Dec 2023	Chinchero International Airport, Cusco · Hyundai-HS / Consorcio Natividad	Peru	USD 450 MM	Built the comprehensive project plan for this national tourism-infrastructure programme, integrating engineering, procurement and construction into a single controllable baseline.
Feb 2023 – May 2023	El Domo project – feasibility stage · DRA Global, Canada	Ecuador	USD 300 MM	Developed the feasibility-stage plan and the engineering, procurement and construction schedule for the execution phase, and simulated the construction sequence in Navisworks 4D from early works through plant erection.
Nov 2022 – Jan 2023	Project control procedures for a mining client · Metacontrol Perú	Peru	n/a (services)	Wrote the client's project control procedures covering sustainability project plans from conception to execution: planning, change control and progress tracking.
Nov 2021 – Oct 2022	Multi-project portfolio (Loma Larga, La Plata, Brazil and Central America) · Gmining Services	Ecuador / Brazil / Central America	Not disclosed	Planning Coordinator. Migrated the portfolio from Microsoft Project to Primavera P6 and planned several concurrent projects, standardising the planning basis across regions.
Feb 2021 – Nov 2021	Las Bambas Stage II expansion study · Ausenco, for Minera Las Bambas	Peru	USD 2.8 BB	External consultant for the whole-programme study schedule: control of all engineering contractors' progress; risk analysis covering environmental, social and permitting exposure; and probabilistic scheduling to derive P50 and P80 programme durations.
May 2020 – Jan 2021	Fortich Hotel and Lilax Hotel · Crisbecorp	Ecuador	USD 50 MM (Fortich)	Post-pandemic construction monitoring services for the Fortich Hotel, extended the same year to monitoring of the structural (grey) works of the Lilax Hotel.
Jun 2017 – Oct 2019	Fruta del Norte (FDN) gold mine · Lundin Gold	Ecuador	USD 692 MM	Senior Planner Coordinator in a five-planner team on a 325 koz/y gold operation. Ran rolling-wave planning, controlled subcontractor schedules, updated engineering, procurement and construction monthly, drove deviation-mitigation actions with area managers, and produced the stakeholder reporting baseline.
Jun 2016 – Mar 2017	La Libertad refinery shutdown · Omaconsa	Ecuador	USD 8 MM	Planner and Engineering Manager, acting as project manager for the shutdown contract in an oil and gas refinery. Owned scheduling, client interface, cost control, procurement and delivery; the contract closed in line with the client's strategy.

Period	Project / Client	Country	Capital value	Role and contribution
Jan 2012 – Mar 2016	Hatch Asociados S.A. – Lima office · Project Control Lead	Peru (with Chile, Brazil, Canada, USA offices)	See portfolio below	Led project controls across a multi-country studies and EPCM portfolio, managing teams distributed across Hatch offices, client interface, estimating, CAPEX and OPEX. Sub-portfolio detailed in the following table.
Jul 2010 – Dec 2011	Project Management Office implementation programme · Verano, Brazil	Ecuador / Colombia / Peru / Uruguay	n/a (services)	Senior consultant implementing PMOs on PMI methodology with Primavera P6 and Contract Management for Interagua (Ecuador), BP and Petrominerales (Colombia), Corpesa and JJC (Peru) and CSI (Uruguay). Trained client teams and delivered portfolio-level scheduling procedures for critical path, cost, man-hour curves and reporting.
Dec 2009 – Jun 2010	Coca Codo Sinclair hydroelectric project, 1,500 MW	Ecuador	USD 2,500 MM	Chief of Project Planning and Control. Short but high-leverage assignment: developed solutions to release early activities for the start of construction, including the pipeline diversions at the water intake to the tunnel.
Jan 2008 – Nov 2009	Cajamarquilla zinc refinery expansion 160K/320K, leaching process · Amec Perú, for Votorantim Metais	Peru	USD 400 MM	Scheduler Lead for the leaching area: full scope scheduling, critical path, and control of subcontractors and the main contractor. Completed the master plan, aligned subcontractor schedules to project targets, and delivered the scope on time and on budget.
Jul 2007 – Oct 2007	Cajamarquilla 160K zinc refinery expansion – plant shutdown · SSK Perú	Peru	USD 11 MM (contract)	Chief of planning and control for a four-month shutdown peaking at 1,500 workers. The move from infrastructure into mining, and the first assignment leading a multinational workforce.

Hatch Asociados S.A. — project portfolio, Lima office (2012 – 2016)

Role	Project / Client	Country	Capital value
Project Manager	Tingo hydroelectric plant – feasibility study · Volcan	Peru	USD 45 MM
Project Manager	Alpamarca – EPCM · Volcan	Peru	USD 160 MM
Project Manager	Tin plant tailings re-treatment – feasibility	Peru	USD 200 MM
Project Manager / Project Control Manager	Chancay port terminal – basic engineering · Terminales Portuarios Chancay	Peru	USD 480 MM
Project Control Manager	Phosphate beneficiation plant – feasibility · Fosfatos del Pacifico	Peru	USD 900 MM
Project Control Manager	Tailings pond independent review support · Antamina	Peru	USD 50 MM
Project Control Manager	North Lakes water treatment plant – feasibility · Barrick	Peru	USD 400 MM

Role	Project / Client	Country	Capital value
Project Control Manager	Antapaccay 82 ktpd plant extension study · Antapaccay	Peru	USD 90 MM
Project Control Manager	Master feasibility study · Milpo	Peru	USD 700 MM
Project Control Manager	Cup kilns and related facilities – basic and detail engineering · SPCC	Peru	USD 100 MM
Project Control Manager	Continuous casting modernisation – basic engineering · Aceros Arequipa	Peru	USD 60 MM
Project Control Manager	Second stage sulphides – definitive feasibility study · Río Alto Mining	Peru	USD 130 MM
Project Control Manager	Gran Colombia Gold–Silver · Medoro	Colombia	USD 1.2 BB
Project Control Manager	Project JESSICA – crushing plant expansion, EPCM · ARASI	Peru	USD 60 MM
Expert consultant	Due diligence – La Virgen to Caripa transmission line	Peru	n/a
Expert consultant	Due diligence – Marañón hydroelectric plant	Peru	n/a
Expert consultant	Due diligence – San Gabán hydroelectric plant	Peru	n/a

PART C · INFRASTRUCTURE, INDUSTRY AND BUILDINGS (1992 – 2007)

Period	Project / Client	Country	Capital value	Role and contribution
Nov 2004 – Jun 2007	José Joaquín de Olmedo International Airport – fuel farm and aircraft apron · TAGSA / EKRON	Ecuador	USD 100 MM	Project Manager for the civil, mechanical and electrical works of the fuel farm and Construction Manager for the aircraft platform, with responsibility for planning, project control, quality control and quality assurance.
2005 – 2007	Terminal Terrestre de Guayaquil · Inmomariuxi C.A.	Ecuador	USD 30 MM	Initial planning and monthly updates for the civil, mechanical and electrical installations.
2004	New 20" submarine pipeline, RLL · Petroindustrial / OXXO S.A.	Ecuador	USD 25 MM	Cost and project control using Primavera P3 and Expedition, including payment requisition management.
2002 – 2003	Simón Bolívar Airport · Inmomariuxi C.A.	Ecuador	USD 5 MM	Initial planning and monthly updates, civil and electromechanical scheduling.
Aug 2002	CENTAM FOL, Comalapa Air Base · ABB SUSA Inc. for US Army Corps of Engineers	El Salvador	USD 15 MM	Initial planning for a forward operating location built under US Army Corps of Engineers contract.
2002	Machala Power project · Washington Group International	Ecuador	USD 350 MM	Initial planning and monthly updates, civil and electromechanical scheduling.

Period	Project / Client	Country	Capital value	Role and contribution
2001 – 2002	FOL support facilities, Manta · ABB SUSA for US Army Corps of Engineers (Mobile District)	Ecuador	USD 15 MM	Initial planning and monthly updates of time and cost.
2001	Machala Power – civil construction · Consorcio Santos CMI	Ecuador	USD 6 MM	Initial planning, monthly updates and cost control.
2001	FOB Phase 2, Puerto Maldonado · CEGAZ Contratistas Generales for US Army Corps of Engineers	Peru	USD 7 MM	Initial planning for a forward operating base.
1999 – 2002	Malecón 2000 urban regeneration · Guayaquil	Ecuador	USD 120 MM	Initial planning and cost control on Primavera P3 and Expedition, running budget, commitment, actual cost and variance reporting on the city's flagship waterfront project.
1999	Hotel Sheraton Four Points · Inmomariuxi C.A.	Ecuador	USD 10 MM	Project control on Primavera P3 and Expedition: budget, commitment, actual cost and variance.
1999	New Hanover Medical Center, Wilmington NC · Construction Interface Inc.	USA	USD 50 MM	Developed construction processes for cost control using Expedition, acting as project consultant on a US healthcare build.
1999	EPA project, Raleigh NC · Construction Interface Inc.	USA	—	Developed administrative and cost-control construction processes using Expedition.
1998	Las Camaras project – completion analysis · Rodolfo Rendón (Diplan)	Ecuador	—	Probabilistic completion analysis using Monte Carlo risk simulation software to test achievability of the remaining programme.
1997 – 1998	Daule Peripa hydroelectric plant	Ecuador	USD 280 MM	Built the master baseline schedule for the civil and electromechanical scope and issued monthly updates as consultant.
1997	Mica Sur project · Pichincha	Ecuador	USD 45 MM	Initial planning, schedule updating and cost control.
1996 – 1998	Church of Jesus Christ of Latter-day Saints – Guayaquil facilities	Ecuador	USD 17 MM	Baseline development and monthly critical-path progress control.
1995	Cigarette plant for Philip Morris, Charlotte NC · Construction Interface Inc.	USA	—	Cost estimation using Timberline, building the reference cost database later used to substantiate claims.
1995	Mall del Sol · Conbaquerizo Cía. Ltda.	Ecuador	USD 35 MM	Master baseline plan and monthly updates.
1992	Marina del Río · Arq. Juan Orús	Ecuador	USD 10 MM	Project plan and monthly updates.

Earlier positions

Period	Project / Client	Country	Capital value	Role and contribution
1990 – 1991	Banco del Progreso	Ecuador	n/a	Technical support.
1989 – 1990	Excellnet	Ecuador	n/a	Technical support for PC hardware and Novell NetWare networks.

Planning and project-control training delivered (1992 – 1999)

Client organisations trained in planning, scheduling and cost control: GEP Servicios, Maxus, Coll Construcciones, ConBaquerizo, Procopar, Consultora Vera, ASTEC, Constructora Norberto Odebrecht, CEDEGE, Inmomariuxi C.A., Consorcio Santos CMI and EnCana Ecuador.

CLAIMS AND FORENSIC SCHEDULING PRACTICE

Claims work is not a recent addition to this practice — it is where it began. Between 1992 and 1999 Martin worked as project consultant for Construction Interface Inc., a US claim-analysis firm, developing its Ecuadorian market and applying its methods on projects in Ecuador and the United States. That period produced two capabilities still in use today: cost-estimating databases built in Timberline for the express purpose of substantiating claims, and probabilistic completion analysis using Monte Carlo simulation to test whether a remaining programme was achievable.

- Forensic delay analysis: reconstruction of the as-built programme from project records, and windows analysis of the contemporaneous updates to establish what actually drove the critical path in each period — used both to substantiate entitlement and, as at Cerro Lindo, to rebut it.
- Defence of claims: preparation of the owner's rejoinder testing a contractor's asserted entitlement against the contemporaneous record — the mirror image of claim preparation, and the harder discipline.
- Schedule quality and defensibility: DCMA 14-point assessment of baselines and updates.
- Quantitative exposure: probabilistic scheduling to establish P50 and P80 completion, as applied on the Las Bambas Stage II programme.
- Contract and change control: Primavera Contract Management and Expedition deployments carrying budget, commitment, actual cost and variance — the contemporaneous record on which claims stand or fall.
- Expert support to legal counsel: a ten-month engagement with Estudio Jurídico Pino Elizalde (September 2024 – July 2025) on the arbitration over the Sabanilla hydroelectric plant in Ecuador — deposition heard in Chile in July 2025, case decided in the client's favour — and, since July 2026, the Cerro Lindo claim for Nexa Resources.

Underpinning credential: AACE International Planning & Scheduling Professional programme, including contract claims and productivity analysis; Past President of the AACE International Ecuador Section and Vice-President of its Peru Section.

PROPRIETARY DIGITAL PRODUCTS

Designed, built and put into production between March and August 2026 using AI-assisted development. Published at productos.tecnoadminconsulting.com in six languages.

Product	Functionality
Convertidor	Converts schedules between Microsoft Project and Primavera P6 in seconds while preserving timephased data: .mpp / .xml → .xer / .pmxml and back. Removes the format barrier between owner, PMC and contractor.
Generador de Paneles (Dashboard Generator)	Upload a schedule and receive an executive dashboard: S-curve, EAC, Look-Ahead, cost and progress. Accepts MPP, XER, XML and Excel.
Panel de Control (Control Panel)	Keeps the project dashboard permanently current: the schedule is dropped into a watched folder and the panel republishes itself. Available in six languages (ES, EN, PT, DE, FR, AR). This is the platform behind the Nexa integrated control panel.
Validador DCMA (DCMA Validator)	Audits a schedule against the DCMA 14-Point Assessment — logic, float, lags, constraints, critical path — returning a quality traffic-light and an instant report. Accepts MPP, XER, XML and PMXML. The same screening used to accept or reject contractor baselines, and to evidence schedule quality in a dispute.
Ponderación diaria (Daily Weighting)	Turns the schedule and the weekly report into a daily forecast weighted by man-hours: how much progress must be earned each day, week and month through to completion. Breaks man-hours down by discipline against the S-curve.
TecnoAnálisis	Company intelligence for counterparty due diligence: official financial statements, ratios, CIIU sector benchmarking, and AI-assisted SWOT and PESTLE analysis. Used to vet contractors, consultants and partners before award.
Issued Log	Live register of issued items by phase, package and discipline: who resolves each one, since when, and what is holding up the works, with a status board.
Formularios de Seguridad (Safety Forms)	Digital IPERC, PETAR, ATS and site checklists completed from a mobile phone, signed and filed automatically.

Supporting internal platforms

Platform	Access	Purpose
SGPCP	sgpcp.tecnoadminconsulting.com	Project management and control system: Fastify + React application on PostgreSQL, holding project structure, progress and control data as a single system of record.
Asistente	asistente.tecnoadminconsulting.com	AI assistant supporting document review, analysis and query across project information.
APS Viewer	viewer.tecnoadminconsulting.com	Autodesk Platform Services 3D/BIM model viewer, used to review design models and support 4D construction sequencing.

CREDENTIALS

Education

- PhD candidate — Universidad de Querétaro, Mexico, 2026 – 2029.
- Electrical Engineer — Escuela Superior Politécnica del Litoral (ESPOL), 1991.
- MBA — ESPAE, 2000.
- Project Management Programme — ESPAE, 2023 – 2024.

Professional affiliations

- AACE International, member since 2014 — Past President, Ecuador Section; Vice-President, Peru Section.

- Project Management Institute, member ID 1373492 — volunteer, PMI Guayas social projects.
- Colegio de Ingenieros Eléctricos del Litoral (CRIEEL), registration 03-G-902.

Papers and speaking engagements

- Planning and scheduling applied to EPCM projects — Chamber of Construction magazine, 2017 (technical paper).
- Speaker, webinar on planning and scheduling with Primavera P6, Exponent, 2020.
- Speaker, PMI Guayas — planning and scheduling applied to EPCM projects, 2019.
- Speaker, Chamber of Construction of Guayaquil, 2017.
- Speaker, 4th Cost Engineering Congress, AACE Lima, 2016.
- Speaker, Oracle Peru with Verano consultants, Lima, 2011.
- Speaker, scheduling with Primavera P3, Universidad Católica de Guayaquil, 2006.
- Speaker, OPUS AEC10 — Chamber of Construction and Colegio de Ingenieros del Guayas, Guayaquil, 2006.
- Speaker, scheduling and controls — Hotel Oro Verde, Guayaquil, 1996.
- Speaker, scheduling and controls — Chamber of Construction of Quito, 1994.

Professional development

- Management of Works Without Loss (Lean construction), 40 h — 360 Lean Consultores, November 2024.
- Project Management with Artificial Intelligence, 12 h — Liderazgo, October 2024.
- PMP certification preparation — PM4LAT / PMCertifica, 2020.
- 1st International Certificate on Design, Administration and Project Evaluation — IDB, Pontificia Universidad Católica del Ecuador and ESPOL: gender analysis, project management, environmental analysis, project controls and monitoring, advanced dealing, financial analysis.
- Project management, business writing, teamwork, problem solving and Gantt-chart courses — LinkedIn Learning.
- Symposium on Economy and Cost Engineering — Chamber of Construction of Quito, 1994.
- Technical courses: asphalt in road construction; potable water systems, automation and control; advanced data communications and networks; digital systems design and start-up (ESPOL).

Languages

- Spanish (native) · English (advanced).