

## MIPET Program

MIPET (Mastering Industrial Plant Engineering & Technologies) initiative is focused on Industrial Plant Engineering & Technical Issues. The goal is to organize a Master Program based on strong cooperation between Academic and Technical Experts coming from Leading Universities and Companies operating in this area with special attention to Engineering and Construction in Power Generation, Iron & Steel and Environment.

## Who Should Attend MIPET Operative and Thematic Modules

The MIPET Modules are Continuous Professional Education for people with Engineering experience and/or new graduates; so MIPET Modules are addressing:

- Young Engineers with strong potential and technical background
- Engineers with experience in Plant Engineering from world-wide
- Engineers already employed in Engineering and Construction Companies who are interested in attending specific Operative Modules of the Master Program such as Project Management, Constructions, Standards and Regulations, Safety, Security & Risks

## MIPET Operative & Thematic Modules

MIPET Operative and Thematic Modules are devoted to develop skills in System and Process Engineers, Technical Coordinators operating effectively in Project Teams in Global Engineering and Construction. These Modules provide deep technical skills in Industrial Plant Engineering & Technologies over specific thematic and operative areas.

In every MIPET module, Professors from University as well as Experts from industry provide direct and interactive opportunities to learn the state of art of Industrial Plant Engineering & Technologies; each single module includes foreground assessments and tests for evaluating the students.

MIPET includes lectures, case studies, examples, testimony, exercises, role play games, computer simulations and Serious Games as well as experience in advanced Labs

The evolution in Industrial Plant Engineering requires constant updating and continuous training of qualified personnel, in this context Genoa University developed the MIPET Professional Modules that represent an important element of MIPET (Master on Industrial Plant Engineering & Technologies - [www.itim.unige.it/mipet](http://www.itim.unige.it/mipet)); MIPET is organized by the Engineering Faculty of Genoa University in collaboration with numerous companies operating in this sector (Ansaldo, ABB, Bombardier, Danieli Centro Combustion, Duferco Engineering, Dupont, Fisia Italmimpianti, Paul Wurth, Prisma Impianti, PMS Engineering, Tenova) and Confindustria (Genova) and the Society of Professional Engineers (Ordine degli Ingegneri di Genova). The proposed modules are open to engineers and company technicians, and are defined as Operative Modules; each Operative Module is focused on a specific topic: i.e. Project Operational Management, Constructions, Standards & Regulations, Safety & Risks; each Operative Module is characterized by a duration of few days including lectures, tutorials, case studies, Computer Interactive Simulations, Serious Games and Role Play Games; the Instructors are a mix of Academics and Industrial Experts and all the lectures are in English; the course attendees received support and educational material; the Modules scheduling is available on the web ([www.itim.unige.it/mipet/modules](http://www.itim.unige.it/mipet/modules)), however, on the basis of the received applications further editions could be organized, even in Italian if requested. The Modules are attended by MIPET Master Student, therefore, in addition, Companies and Individuals are entitled to register and participate by filling out the MIPET Operative Course Form and sending it to [mipet@itim.unige.it](mailto:mipet@itim.unige.it); a special fee is reserved for employers of companies associated Confindustria and/or members of the Professional Engineering Society (Ordine degli Ingegneri); in addition, this year it will be possible for MIPET Sponsor Companies & Institutions to register participants even on MIPET Thematic Modules.

In every MIPET module, Professors from University as well as Experts from industry provide direct and interactive opportunities to learn the state of art of Industrial Plant Engineering & Technologies; each single module includes foreground assessments and tests for evaluating the students.

## Module Registration Forms

MIPET Modules include special discounts for Confindustria Members, Associates to Ordine degli Ingegneri and MIPET Sponsors; Registration Form are available at the end of this document, for further info on fees and special offers please contact by email: [mipet@itim.unige.it](mailto:mipet@itim.unige.it).

## **MIPET OPERATIVE MODULES**

The Operative Modules are organized within 1 week (5 days, ~35 hours); all Interested Companies, Engineers & Institutions are entitled to register for participation.

### **Operative Module 1: Standards & Regulations (Coordinator: Prof.Giribone, Ing.Tremori & Ing.Cerruti)**

- Large Industrial Plants: an Overview on Standards, Regulations and Administration Authorization Processes along Project Life Cycle
- Case Study on Impact of International Regulations on Industrial Plants with Special Attention to Directive 2006/42/CE, ATEX, PED.
- Quality Assurance and Control in Industrial Plants
- Quality, Safety and Environment Integrated Management in term of standards and regulations
- Environmental Impact Evaluation
- Introduction on Fire Safety and Explosion Risk for Industrial Plants. Risk Analysis for Fires and Explosions: methods, documents and classification
- Safety Concept. Innovative Engineering Solutions for Fire and Explosions in Industrial Plants. Combination of Explosion/Fire Risks
- Fire Safety and Explosion Simulation
- Actions: organization, prevention, protection and mitigation solutions
- EXPLOSAD (Experience on Process Plant Safety Design): Case Study based on Simulation applied to fire and explosion protection applied to an industrial plant

### **Operative Module 2: Project Management (Coordinator: Prof.Bruzzzone, Ing.Fassone)**

- Project Management and specific issues related to Industrial Plants
- Project Life Cycles
- Reporting & Metrics for Project Management: PMB & KPIs
- Tools and Documents for Plant Project Definition, Management and Control
- Cost and Time Management, Techniques and Methodologies for supporting planning and control
- Risk Analysis & Risk Management: Risk Source Identification, Quantification, Decisional Trees, Statistical Methods and Simulation
- Communications: Technological Solutions, Information Distribution Policies
- HR in Project Management, organizational planning, People Management
- Quality Management: methods, constraints and critical issues in Industrial Plants
- Project Management Networks and Certification Processes
- Coordination Engineering, Purchasing, Erection, Commissioning
- PM Certification, Societies and International Overview
- Role Play Game: Celebes (Cooperative Engineering Plant, Project Business Exercise and Simulation), work to be completed by coordinated teams concurrently working on a complex industrial plant under coordination of real Project Managers and operating on a distributed simulation

**Operative Module 3: Construction (Coordinator: Prof.Tonelli, Ing.Donetti, Ing.Rossi)**

- Construction of Industrial Plants
- Industrial Plant Construction from Project Start, Precommissioning, Commissioning, Closing
- Case Studies on Project Logistics in National International Frameworks
- Interaction between Engineering and Purchasing
- Case Study on Engineering Purchasing interactions
- Managing Construction Projects on Site
- Case Studies on Construction Yard Management
- Planning and Control on Site Construction
- Case Study on Construction Yard Activities
- Safety on Erections, Heavy Transport and Heavy Lifting during Construction
- Babel Experience: competition between two teams each one divided between Site and Office on a Construction Project; the experience is devoted to outline the critical issues related to coordination/cooperation between engineering and constructions as well as aspects related to communication, human resource management and project documentation

**Operative Module 4: Safety & Risks (Coordinator: Prof.Taramasso, Ing.Tremori)**

- General Safety concepts related to Industrial Plants Life Cycle (accident pyramid, cause effect analysis, risk analysis, training and information, BBS, main indexes and matrixes, organization)
- Specific safety characteristics on Process Plants
- General Risks on Industrial Plants
- Methodologies and behavioral aspects related to safety and risks to be considered in plant design and construction
- Behavioral aspects influence on accident frequency
- Safety Design
- Quantitative and Qualitative methods to support risk evaluation and management
- Introduction to integrated safety and risk evaluation systems
- Case Study on Safety Integrated Solutions
- Introduction to SBRA Methodology
- Exercise: application of SBRA (Scenario Based Risk Assessment) Methodology on a Construction Yard
- Case Study Resolution on the Construction and Debriefing on SBRA (Scenario Based Risk Assessment) application
- Introduction to Industrial Plant Service impact on Safety along Plant Life Cycle: Availability and indexes, Alternative Approaches, EOH, Impact of Engineering on Service and Safety, Service Inventory, Consistency and Optimization of Inspection and Revision Policies
- Service for Complex Industrial Plants

**Operative Module 5: Innovative Technologies, Techniques and Methodologies for Industrial Plants (Coordinator: Prof.Bruzzone, Ing.Raggio, Ing.De Marchi)**
*Operative Module 5.1: R&D, Innovative Technologies, Techniques and Methodologies for Industrial Plants*

- Research and Development for Industrial Plants
- R&D and Competitiveness
- Risk Analysis in R&D
- Case Study: EU Project for Innovative Technologies for Process Industry
- Case Study for applying Innovative Techniques for Sustainability in Industrial Plants

*Operative Module 5.2: Modeling & Simulation in Industrial Plants*

- Simulation for Industrial Plants
- Operational Training Simulators; comparison between Simulators for training and simulators for design and development
- Examples: System Simulation in Iron and Steel Plants

*Operative Module 5.3: Communication Skills & Team Building for Industrial Plant Engineers*

- Communication Skills
- Communication Channels -Relationships - Public Speaking
- Team Building – Interpersonal Communication - Leadership – Lateral Thinking

## **MIPET THEMATIC MODULES**

The Thematic Modules are focusing on different industrial plant engineering sectors; the Thematic Modules are open for registration just to MIPET Sponsors & Institutions

### **Power Plants (Coordinators: Ing.Barabino & Ing. Traverso)**

- Power Plants
- Fossil Plants & Conventional Plants
- Combined Cycle Plants
- Combined Cycle Plant Configuration
- Mechanical Plants
- Environmental Impact of Power Plants
- Electrical Plants
- Piping design
- Power Production Market
- Gas Turbine Plants
- Steam Turbine Plants
- Alternators
- Boilers
- Water Treatment Plants
- Tour: Visit to Power Plant

### **Combustion Technology (Coordinators: Ing.Mozzi, Ing. Raggio)**

- **Combustion Technologies**
- Fluid Dynamics & Heat Exchanges in Industrial Plants
- Operational Procedures in Combustion
- Combustion Models for Industrial Plants
- Overview on Heating Furnaces
- Technological Trends in Industrial Furnaces
- Example: Hot Treatment Furnace Design

### **Iron & Steel Plants (Coordinators: Ing.De Marchi, Ing.Raggio, Ing.Mozzi)**

- Iron & Steel Industry Processes
- Iron & Steel Market
- From Raw Material to Blast Furnace
- Fundamentals of Metallurgical Processes
- Metal Making
- Industrial Furnaces
- Blast Furnace
- Iron & Steel Plants: Sinter, Pellet, Steelworks
- Steel Rolling Processes & Heat Treatment
- Strip Processing
- Cold Milling Rolling
- Roll Shops
- Material Handling
- Coke Plants
- Tour: Visit to Steel Plant

**Processes & Machines in Industrial Plants (Coordinators: Prof.Lucifredi, Ing.Romairone)**

- Combustion Technologies
- Fluid Dynamics & Heat Exchanges in Industrial Plants
- Operational Procedures in Combustion
- Combustion Models for Industrial Plants
- Overview on Hot Treatment Furnaces
- Technological Trends in Industrial Furnaces
- Example: Hot Treatment Furnace Design
- Combustion Technologies for Gas Turbine
- Condition Monitoring, Diagnostics, Non destructive Controls and Plant Maintenance
- Vibration Analysis, Modal Analysis, FEM for vibration analysis, TPA, durability, inertial characteristics by experimental analysis, regulations for sustainable vibration analysis, qualification on vibration of mechanical components (sine, random, combined); criteria for requirement definition (mission synthesis), acoustic intensity and holography
- Simulation and Dynamic Analysis of Plants and Machines for Raw Material Handling and Manufacturing
- Industrial Plant Management & Maintenance
- Industrial Plant Service
- Safety & Security in Industrial Plants
- Project Document Flow related to Electrical Systems in Industrial Plants
- Project Document Flow related to Mechanical Drawings in Industrial Plants
- Example: Company Organization within a Power Plant Producer
- Example: Company Organization within a Iron & Steel
- Document Flow for Proposals and Tenders
- Panel Discussion on Documentation & Organization within Industrial Plant Business

**Desalination and Water Treatments (Coordinators: Ing.De Marchi, Ing.Migliorini)**

- Waste Water Treatment Plants
- Municipal Solid Waste Treatment: Incineration Plants, Pyrolysis and Gasification
- Case Study: MSW Gasification Plant
- Desalination Plants
- Case Study: Case Study: Desalination Plant - Heat Exchange & Plant Processes
- Case Study: Case Study: Desalination Plant - Material Transfer and Pumping Operations, Alternative Technologies
- Desalination Plants
- Fuel Storage Facilities

**Environment and Sustainability for Industrial Plant Engineering (Coordinators: Prof. Del Borghi, Prof. Tonelli, Ing. De Marchi)**

- Environmental Control Techniques within Industrial Plants
- Life Cycle Assessment
- Sustainable Engineering: Engineering and the industrial sequence, Green chemistry, Green engineering. The process design challenge, Pollution prevention, The process life cycle, Green technologies
- Design for Environment and Sustainability: Plants and Infrastructure: Electric power infrastructure, Water infrastructure, Transportation infrastructure, Mechanical infrastructure, Infrastructure and building material recycling
- Analysis of technological systems: Industrial ecosystems, Material Flow Analysis, National material accounts, Energy and industrial ecology, Water and industrial ecology, Modelling in industrial ecology
- Industrial ecology and sustainable engineering in developing economies: The three grouping, RDC/SDC dynamic and perspectives, Industrial ecology and sustainable engineering practice in LCDs
- Flue Gas Treatment in Iron & Steel Industry
- Urban Solid Waste Treatments: Incineration Plants, Pyrolysis, Gasification Plants
- Case Study: Gasification Plant

**MIPET OPERATIVE AND THEMATIC MODULES REGULATION & FEES**

<b>Operative Module</b>	<i>Discounted Fee</i>	<i>Regular Fee</i>	
Project Management – May 27-31, 2013 (5 days)	1,200.00	1,500.00	Euro (IVA Esente)
Construction – June 3-7, 2013 (5 days)	1,200.00	1,500.00	Euro (IVA Esente)
Standards & Regulations– June 10-14, 2013 (5 days)	1,200.00	1,500.00	Euro (IVA Esente)
Safety & Risk - May 17-21, 2013 (5 days)	1,200.00	1,500.00	Euro (IVA Esente)
R&D Projects, Innovative Technologies, Techniques and Methodologies for Industrial Plants - June 24-25 (2 days)	480.00	600.00	Euro (IVA Esente)
Modeling & Simulation in Industrial Plants - June 26-27 (2 days)	480.00	600.00	Euro (IVA Esente)
Communication Skills & Team Building for Industrial Plant Engineers - June 28 (1 day)	240.00	300.00	Euro (IVA Esente)
<b>Thematic Modules</b>	<i>Discounted Fee</i>	<i>Regular Fee</i>	
Combustion Technology – July 2-4 2013 (3 days)	720.00	900.00	Euro (IVA Esente)
Iron & Steel – July 8-17, 2013 (8 days)	1,920.00	2,400.00	Euro (IVA Esente)
Power Plants – July 18-24, 2013 (6 days)	1,440.00	1,800.00	Euro (IVA Esente)
Water Treatment & Desalination – July 29-30, 2013 (2 days)	480.00	600.00	Euro (IVA Esente)
Processes & Machines in Industrial Plants – August 26-30, 2013 (5 days)	1,200.00	1,500.00	Euro (IVA Esente)
Environmental Plants and Sustainability for Industrial Plants – September 3-5, 2013 (3 days)	720.00	900.00	Euro (IVA Esente)

**OPERATIVE AND THEMATIC MODULE STRUCTURE**

Each Module includes a knowledge assessment and the attendees successfully completing each single Module receive a Certificate from Genoa University.

The Educational Material specific of the Module is provided to each attendee; all Modules are delivered in English by University Professors & Industrial Experts; Operative Modules are open to all companies and engineers interested, while Thematic Modules are offered just to MIPET Sponsor Companies & Institutions.

**FREE SEATS IN OPERATIVE AND THEMATIC MODULES**

In case of multiple registrations you will get for Free the 4th Operative Module Seat (4 seats available with 3 registrations on Operative Modules); please note that this offer requires prepayment in full and is non refundable & non changeable; these free seats cannot be combined with other discounts or benefits Each MIPET Sponsor will get two free seats for each Operative Module; to learn about MIPET Sponsor Benefits please contact [mipet@itim.unige.it](mailto:mipet@itim.unige.it)

**DISCOUNTED FEES ON OPERATIVE AND THEMATIC MODULES**

Discounted Fees are eligible for MIPET Sponsors and Members of Confindustria and/or Ordine degli Ingegneri; please note that these Discounted Fees requires prepayment in full and it is non refundable.

**REGISTRATION DEADLINE FOR OPERATIVE AND THEMATIC MODULES**

Do not forget to register early to secure your place; therefore please remember to respect the deadline for registration (April 1st, 2013)

**OPERATIVE AND THEMATIC MODULE SCHEDULE**

The Module Tentative Schedule is provided above, therefore changes are possible and all the attendees will be promptly informed; please note that additional editions of the Modules could be held if necessary; the dates of these additional editions will be communicated and agreed as soon as possible with attendees.

**OPERATIVE AND THEMATIC MODULES REGISTRATION PROCEDURE**

Please send the MIPET Registration Form and the MIPET Attendee Form(s) to Email [mipet@itim.unige.it](mailto:mipet@itim.unige.it); please include the Registration Form with your Point of Contact for coordination and billing activities and attach as soon as possible the MIPET Attendee Forms; each registration entitle to have a seat in the corresponding Module and attendee names are changeable, therefore in order to obtain the MIPET Certificate an attendee should attend at least 70% of the course and pass the final foreground assessment.





The Master in Industrial Plant Engineering and Technologies of the Genoa University

# MIPET Form

## MIPET Registration Form

**Industrial plant engineering and technologies**

Name: \_\_\_\_\_ Title: \_\_\_\_\_ Role: \_\_\_\_\_ Background: \_\_\_\_\_

Affiliation: \_\_\_\_\_ Department/Division: \_\_\_\_\_ VAT: \_\_\_\_\_

Office Address: \_\_\_\_\_ Zip Code: \_\_\_\_\_ Town: \_\_\_\_\_ Country: \_\_\_\_\_

Email: \_\_\_\_\_ Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ Mobile: \_\_\_\_\_

Operative Modules	N.Registrations	N.Free Seats <sup>(*)</sup>	Discounted	Regular	Total
Standards & Regulations	—	—	1'200	1'500 [Euro]	—
Construction	—	—	1'200	1'500 [Euro]	—
Safety & Risk	—	—	1'200	1'500 [Euro]	—
Project Management	—	—	1'200	1'500 [Euro]	—
Industrial Plants: R&D <input type="checkbox"/> / M&S <input type="checkbox"/> / Comm.Skills & Team Building <input type="checkbox"/>	—	—	—	[Euro]	—
<b>Thematic Modules</b>					
Combustion Technology	—	Not Applicable	720	900 [Euro]	—
Iron & Steel	—	Not Applicable	1'920	2'400 [Euro]	—
Power Plants	—	Not Applicable	1'440	1'800 [Euro]	—
Water Treatment & Desalination	—	Not Applicable	480	600 [Euro]	—
Processes & Machines in Industrial Plants	—	Not Applicable	1'200	1'500 [Euro]	—
Environment and Sustainability for Industrial Plants	—	Not Applicable	720	900 [Euro]	—
<b>Total (VAT not included)</b>	—	—	—	[Euro]	—

Affiliated to Confindustria [Yes] [ No ]      Member of Ordine degli Ingegneri [Yes] [ No ]      Member of MIPET Sponsor [Yes][ No ]

Please send to [mipet@itim.unige.it](mailto:mipet@itim.unige.it)      Signature \_\_\_\_\_

Filling up this Form is an explicit authorization to use these info for MIPET initiative (D.Lgs 196/2003)

The Master in Industrial Plant Engineering and Technologies of the Genoa University

# MIPET Form

## MIPET Attendee Form

**Industrial plant engineering and technologies**

Name: \_\_\_\_\_ Title: \_\_\_\_\_ Role: \_\_\_\_\_ Background: \_\_\_\_\_

Affiliation: \_\_\_\_\_ Department/Division: \_\_\_\_\_ Business Sector: \_\_\_\_\_

Office Address: \_\_\_\_\_ Zip Code: \_\_\_\_\_ Town: \_\_\_\_\_ Country: \_\_\_\_\_

Email: \_\_\_\_\_ Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ Mobile: \_\_\_\_\_

**Operative Modules**

Standards & Regulations (5 days)       Project Management (5 days)       Construction (5 days)       Safety & Risk (5 days)

R&D in Industrial Plants (2 days)       M&S Industrial Plants (2 days)       Comm.Skills & Team Building for Engineers (1 day)

**Thematic Modules**

Iron & Steel (8 days)       Processes & Machines in Industrial Plants (5 days)

Power Plants (6 days)       Water Treatment & Desalination (2 days)

Combustion Technology (3 days)       Environment and Sustainability for Industrial Plants (3 days)

Affiliated to Confindustria [Yes] [ No ]      Member of Ordine degli Ingegneri [Yes] [ No ]      Member of MIPET Sponsor [Yes][ No ]  
 Free Seat as MIPET Sponsor [Yes] [ No ]

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