First Year Courses

The first-year courses of the Ph.D. in Economics and Management of Technology are about 300 hours of class divided as reported below. The subjects proposed fall in the fields of "Management of Technology and Finance" and "Industrial Organization and Economics of Innovation", constituting the two main streams of research available for the students during the program.

Statistical Methods and Econometrics

1. Regression Analysis. Multivariate Normal distribution. Stochastic simulation. ANOVA. Regression and linear correlation. Diagnostics. GLS and heteroskedasticity. Non linear and non parametric regression.
2. Time series and dynamic models. Forecasting. Autocorrelation and spectral analysis. ARIMAX models, identification, estimation, validation. Multiplicative ARIMA models and intervention analysis. ARCH models. Non linear models.
3. Industrial applications. Valuation of quality and technology uncertainty. Variability decrease and planning of experiments. Monitoring of quality and performance. Monitoring of complex phenomena.

Finance and Management Control Systems

Objectives of a management control system. Techniques and architectures for control. Budgeting. Control of IT network firms. Financial management of the firm: tools and risks. Functioning of financial markets and securities' pricing. Initial public offerings. Financing innovative firms: business angels, venture capital. High growth new markets.

Microeconomics and Industrial Organization

Decision theory. Consumer behavior and demand functions. Choice under uncertainty. Inter – temporal optimization. Representation of technology and allocation choices. Production functions. Productivity, costs and returns. Game theory and applications: one-stage games, dynamic games, auctions and bargaining theory, moral hazard and adverse selection, incentives, optimal contracts, principal agent models. Oligopoly models. Theory of the firm: team production, ownership, control, residual rights. Industrial policy and regulation.

Economics and Management of Innovation

Technology and market structure. Models of adoption and diffusion of technology. Endogenous growth theory, neo-Schumpeterian models. Policy for innovation. Innovation and competitive advantage. Business tools for innovation strategies. Choice of technologies. Technology-based strategies. Technologies and organization.

Strategy and Management of Technology

Competitive forces and strategic planning. Value chain and firm positioning. Technology and firm internationalization. SWOT analysis. Building up a business plan. Strategic actions. Strategy and firm value. Strategic interaction and game theory. Strategies and e-business projects.

Seminars

In addition to courses, academic seminars held by scholars belonging to the academic community are proposed during the program with the aim of fostering cultural and scientific exchange between the academic and the business communities.

Issue specific seminar courses are provided during the academic year.

The Faculty organizes each year two Work In Progress (WIP) Seminars where second and third year PHD students presents their research activities.