

## Industrial and Business Mathematics in the Third Millennium

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This paper reviewed mathematical problems and challenges faced by the industrial, the business and the financial sector and how **Program in Industrial and Business Mathematics** proposes to tackle them by the interfacing the skills taught in the classroom setting and the skills need in the industrial and the business setup (Fig. 1). Mathematics possesses the unique powers of *generalization* and *application*. The teaching methodology, based on concepts, mathematical structure, tools, techniques and applications, was elaborated.

<i>Semester I</i>		<i>Semester II</i>	
Course No.	Course Title	Course No.	Course Title
PIBM 501	Discrete/Finite Mathematics I	PIBM 524	Discrete/Finite Mathematics II
PIBM 505	Applied Mathematical Analysis I	PIBM 528	Applied Mathematical Analysis II
PIBM 509	Applicable Physical Mathematics	PIBM 532	Dynamical-System Analysis
PIBM 513	Nonlinear/Global Analysis I	PIBM 536	Nonlinear/Global Analysis II
PIBM 517	Probability & Statistical Analysis I	PIBM 540	Probability & Statistical Analysis II
PIBM 521	Data Structures & Programming Languages I	PIBM 544	Data Structures & Programming Languages II
<i>Semester III</i>		<i>Semester IV</i>	
Course No.	Course Title	Course No.	Course Title
PIBM 601	Numerical Computing & Applications Software I	PIBM 620	Numerical Computing & Applications Software II
PIBM 605	Stochastic Processes	PIBM 624	Modeling & Time-Series Forecasting
PIBM 609	Mathematical Ecology	PIBM 628	Simulation Techniques
PIBM 613	Econometrics	PIBM 632	Optimal Control & MIS
PIBM 617	Optimization & Financial Engineering Optional I	PIBM 636	Actuarial Mathematics Optional II
<i>Optional Courses: Semester III</i>		<i>Optional Courses: Semester IV</i>	
Course No.	Course Title	Course No.	Course Title
PIBM 621	Fractal Modeling	PIBM 640	Fuzzy Sets & Applications
PIBM 625	Game Theory & Applications	PIBM 644	Information Theory & Cybernetics
PIBM 629	AI Techniques & Applications	PIBM 648	Biomathematics

**Fig. 1. Scheme of studies of Program in Industrial and Business Mathematics**

**Keywords:** Applications of mathematics • Mathematical concepts • Mathematical structure • Mathematical techniques • Mathematical tools

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