Veljko Milutinovic

Adjunct Professor, University of Kragujevac, Serbia (s. 2020)

Visiting Professor, University of Belgrade, Serbia (s. 2024) and Faculty Member (1990-2016)

Adjunct Professor, Technical University of Graz, Austria (s. 2024)

Adjunct Professor, Technical University of Vienna and University of Vienna, Austria (s. 2018)

Adjunct Professor, Indiana University, Bloomington, USA (2015-2026)

Visiting Lecturer, Purdue University, USA (s. 2016) and Faculty Member (1983-1995)

Foreign Member, Montenegrin Academy of Sciences and Arts, Podgorica, MNE

Founding Member, Serbian Academy of Engineering, SRB

Life Member of the Academy of Europe, London, GBR (a former Honorary Treasurer)

Life Member of the IEEE, Washington D.C., USA

CoChair of VIPSI Conferences

CoEditor of IPSI Transactions (eSCI)

ACCELERATION

This course (in versions for 1,2,3 and 6 credits) sheds light on the new paradigms in semiconductor computing and beyond for acceleration of complex code in informatics (AI is just one of many fields needing acceleration).

It covers 12 topics of emerging interest for future computer-on-a-chip design (Control Flow, Data Flow, Silicon, GaAs, etc...) with interfaces to the most recently emerging non-semiconductor technologies (quantum, opto, bio, and chemo).

This course (with its 12 homework assignments) could be scheduled as either a one-semester 12-week course/program, or as an obligatory-presence workshop/seminar followed by homework and/or optional research-for-credit on the M.Sc. thesis level or the Ph.D. thesis level. The version presented here corresponds to the Purdue University Fall 2026 experiences, including 116 computing-oriented electrical engineering students with obliged in-class presence, and another 244 computing-oriented general sciences students (geo plysics, physics, chemistry, biology, math,

mechanics, civil, cyber, etc...), of which 29 had the in-class presence obligation, while the remaining 215 had the on-line presence option. The course has been created almost 4 decades ago, while its current contents (the 2026 update) are inspired by the success of past Serbian students, now at the Vice President positions in the leading six super-computing and VLSI companies of the USA multi-core arena (Qualcomm, Intel, AMD, IBM, NCR, HP Labs) and also by those on the Tenured Professorship positions in computing and VLSI programs of leading six universities of the USA (Harvard, MIT, Stanford, Brekeley, UCLA, and USC). This presentation also shares the most interesting teaching experiences from the above mentioned companies/universities, as well as others from the USA, Europe, Asia, and Australia.

ENTREPRENEURSHIP

This presentation describes the course on the topic from the title.

This topic can be covered as an isolated lecture of one to four academic hours or as a full one-semester course of 12 to 36 academic hours with 12 homework assignments.

It covers 12 management-oriented high-tech supported paradigms for creative and holistic management of projects in any field of interest, with the stress on Artificial Intelligence and Big Data.

Themes included are: (a) Writing proposals for the NSF in the USA or for Horizon in Europe, (b) Mastering the elevator-pitch generation skills, by writing short analytical esseys for GMAT or GRE, (c) Strategic planning using CMMI of DARPA, (d) Tactical planning using Agile Methods of DARPA, (e) Creating a Highly Visible web presence for Worldwide Markets, a strategy created at Harvard, (f) Creating the Mind Genomics Campaign for Targeted Marketing, a strategy created at Harvard, (g) Incorporating based on SBA of USA, (h) Protecting based on PTO of USA, (i) Writing survey articles for SCI journals, (j) Writing research articles for SCI journals, (k) Data Mining and Semantic Web, and (l) Creativity and Branding.

Each theme includes theory, practice, examples, and an anectode that stresses the essence.

So far, in the last 40 year, the course was presented, in its various forms, for years in the line, at Indiana University, Purdue University, MIT, and Harvard in the USA. In Asia at Hebrew University in Jerusalem, Technion, Bogazici, Koç, Thinghua, Shandong, Sendai, and Tokyo. Also, in Europe at ETH, EPFL, UNIWIE, TUWIEN, Siena, Salerno, Barcelona, Madrid. In exYu at Belgrade, Podgorica, Zagreb, and Ljubljana.

The presentation is based on author's experiences from his DARPA projects on GaAs and DataFlow computing, and is inspired by current VicePresidents (for the company's core business) of Qualcomm, Intel, IBM, AMD, NCR, and HP Labs, who all graduated from the University of Belgrade,

where this course is/was obligatory or elective in four different schools (ETF, MATF, GRF, FON).

In the current academic year, or in the very near past, the course has been taught also for students of Purdue University, Indiana University in Bloomington, MIT, Harvard, Hebrew University of Jerusalem, Tel Aviv University, Technion, Weizmann, Universities of Salerno and Siena, as well as of UNIWIE and TUWIEN.

The course is supported with a textbook by Cambridge Publishers, for which the pearls of wisdom were contributed by 20 Nobel Laureates.