

MSc in Energy

Research Interests

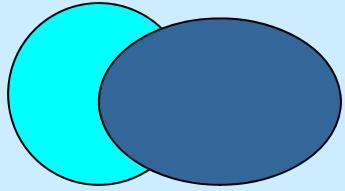
Proposed fields for Dissertation

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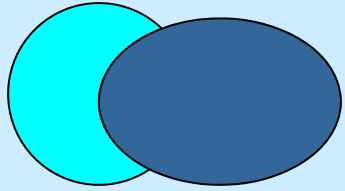
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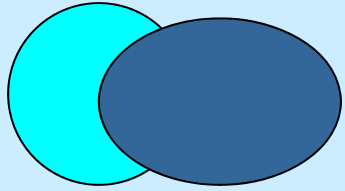
Educational and Research activities in the areas of:

- Optimisation of Energy and Environmental Systems
 - Production and Resources Management
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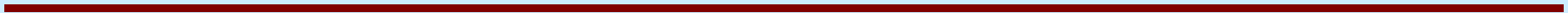
Research Activities

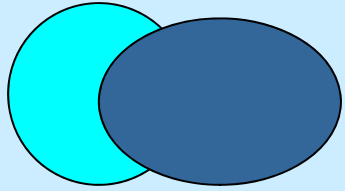
- Oriented in the area of Systems Engineering, our research and development activities focus in the fields of:
 - Modeling and Optimization of Production, Energy and Environmental Systems
 - Implementation of mathematical programming tools for the solution of complex engineering problems
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RESEARCH AREAS for Proposals in our MSc

- Environment
- Energy
- Manufacturing

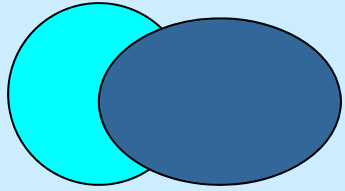




Area 1: Environmental Impact Assessment

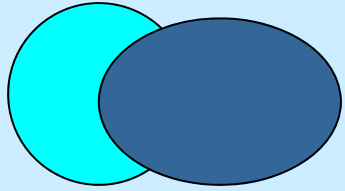
- Environmental Impact Assessment of various projects
- Quantitative Analysis and Model development for the EIA in specific processes





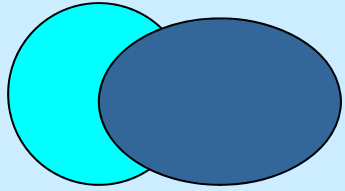
Area 2: Water resources

- Analysis of water resources decision support systems. User requirement analysis and Operational specifications. (*Tool development???*)
 - Technical, economic and environmental evaluation of alternative water supply methods in areas with limited water resources. (Desalination, dams, water transfer...)
 - Quantitative analysis and evaluation of water costing and water pricing. Parametric analysis.
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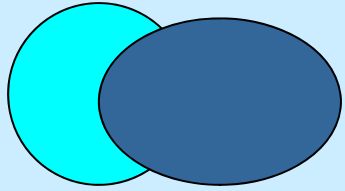
Area 2: Water resources (cont.)

- New technologies in desalination
 - Energy saving in desalination plants
 - Novel implementation of RES in desalination projects
 - Design and technical/economic analysis of autonomous desalination - power plants operating with RES
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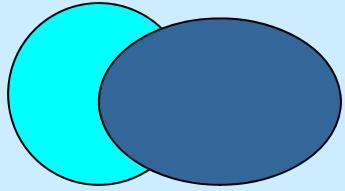
Area 3: Energy - Biomass - biofuels

- Technical and economic evaluation of various raw materials, production processes, overall supply chain - third generation of biofuels
 - Biomass uses in heat, power, biofuels production - application in GIS
 - Overall optimisation and life cycle assessment of biomass exploitation
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Area 4: Energy - Manufacturing

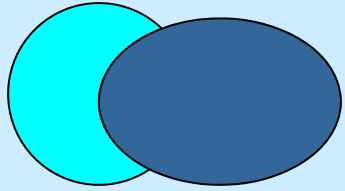
- Rational use of energy and/or energy efficiency improvement in specific production sites / production sectors.
 - Energy planning
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Area 5: Specific Projects (our best!!!)

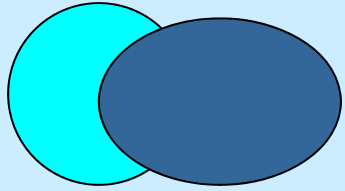
- Use of Optimisation software for the solution of water resources optimisation problems in specific Aegean islands. Implementation of existing models and possible improvement.

 - Use of Optimisation software for the solution of specific biomass supply chain problems. Implementation of existing models and possible improvement.
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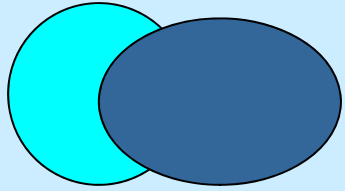
New Specific Proposed Dissertation Subjects

- Materials
 - Energy / environment business (Forecasting)
 - Energy and Environment Educational Software
 - Forecasting in energy and environmental technology
Modeling and optimisation
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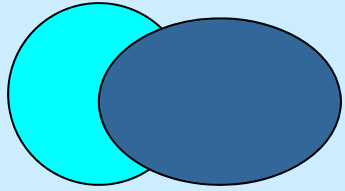
CURRENT TRENDS AND FUTURE PROSPECTS IN THE ASSESSMENT AND THE IMPROVEMENT OF THE ENVIRONMENTAL BEHAVIOUR OF THE MATERIALS

- The objective of the present work is to investigate and evaluate the methods and tools that have been developed for the so called eco-efficiency assessment of the materials.
 - The work will propose solutions on how this eco-behaviour of the materials themselves should affect the design, the manufacturing and the use of the material during its whole life cycle.
 - The innovativeness of the work lies in the fact that it is completely focused on the materials behavior and highlights future trends and prospects in the improvement of their properties as far as resources exploitation is concerned.
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ENERGY AND ENVIRONMENTAL SECTOR DEVELOPMENT AND PROSPECTS IN EU AND GREECE. PROSPECTS AND TRENDS

- ✓ The objective of the proposed work is to identify the nature and magnitude of the energy and environment-related (research and) business activities in EU and Greece today and for the next 10 years.
 - ✓ In its conclusions, the work will highlight the challenging opportunities that are emerging in the environmental field for business and professionals and possibly create new data for these issues to be used in other research and design works.
 - ✓ Concerning the research component of the work, it is the synthesis and forecasting of the development of the sector in specific fields and the identification that will determine the trends and opportunities for the corresponding business sector.
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DEVELOPMENT of Educational Material for the Teaching of Energy and RES in primary / high schools

- The curriculum of primary / high schools contain many energy aspects dealing with energy sources, energy conversion, energy efficiency.
- Usually, and mainly because of the very low age of the students, it is required that these basic principles are given in the proper manner, with pictures and action in parallel to books.
- The objective of the present work is the development of material for the aid of the teachers to transfer to young students the basic concepts, ideas, rationale of energy and its uses.
- The work will contain presentations, videos, films and multimedia in general in predetermined thematic areas.

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For more information and details:

<http://ikaros.teipir.gr/mecheng/OPS>

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