**Rating Based Modelling and Stress Testing (8 hours)**

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**PROGRAM AND AIM OF THE COURSE**

The aim of the course is to introduce some basic concepts related to Basel 2 Regulation and IRB approach, in particular development of credit risk models for the estimation of the Expected Loss (PD, LGD, CCF/EAD and Stress Test). The course is divided into four parts:

***Part I: Overview of IRB Regulation and credit risk models***

The first part provides an overview of the Basel 2 Regulation main concepts, focusing on credit risk and IRB Approach, as well as credit risk models:

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| * **Overview of Basel 2 Regulation and IRB Approach**
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| * Basel 2 Regulation: general overview and key concepts
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| * IRB Approach: aim and benefits
 |
| * **General concepts for credit risk models**
 |
| * regulatory references
 |
| * segmentation
 |
| * default definition
 |
| * general overview of credit risk models (PD, LGD, CCF/EAD, Stress Test)

***Part II: Rating models for SME/Corporate portfolios***The second part provides an overview of the best practice approach for the development of rating models for corporate clients, illustrating all the steps of the development process; the theoretical explanation is integrated with a case study: |
| * **Rating models development – SME and Corporate portfolios – development process**
 |
| * introduction
 |
| * behavioural and application models
 |
| * possible approaches
 |
| * overview of statistical model (logistic regression model)
 |
| * development sample construction
 |
| * variable transformation and treatment of outliers and missing values
 |
| * long list construction and univariate analysis: Accuracy Ratio, Default Curve, Power Curve, Hit Rate, “Good/Bad” histogram, average ratios for good and bad, ...
 |
| * short list selection: performance and correlation analysis
 |
| * model selection
 |
| * model performance
 |
| * model calibration
 |
| * mapping to master scale
 |
| * **Rating models development – SME case study**
 |
| * long list construction and univariate analysis: Accuracy Ratio, Default Curve, Power Curve, Hit Rate, “Good/Bad” histogram, average ratios for good and bad, ...
 |
| * short list selection: performance and correlation analysis
 |
| * model selection
 |
| * model performance
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| ***Part III: LGD and CCF/EAD models***The third part provides a brief overview of the best practice approach for the development of LGD and CCF/EAD models for retail and corporate clients, illustrating all the steps of the development process: |
| * **LGD models development – development process**
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| * introduction
 |
| * available approaches
 |
| * overview of econometric model (multiple linear regression)
 |
| * overview of Gross LGD approach
 |
| * Gross LGD calculation
 |
| * treatment of open defaults
 |
| * cash-flows discounting
 |
| * model selection
 |
| * model performance
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| * **CCF/EAD models development – development process**
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| * introduction
 |
| * available approaches
 |
| * overview of econometric model (multiple linear regression)
 |
| * CCF/EAD calculation criteria for different products
 |
| * model selection
 |
| * model performance
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| ***Part IV: Stress Test***The fourth part aims at proving an overview of the approach used for Stress Test models development): |
| * **Use test and use of credit risk models in the banking process**
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| * introduction
 |
| * scenarios
 |
| * macroeconomic factors and their correlation
 |
| * models estimation
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***READING LIST***

* Oesterreichische Nationalbank (OeNB) and Financial Market Authority (FMA) *“Rating models and validation”*, Vienna, 2004.