INTERNATIONAL MANAGEMENT INSTITUTE
BHUBANESWAR
Shaping global leaders for tomorrow

Post Graduate Diploma in Management (PGDM)

MK-621 Business Forecasting

Full Credit (3 credits)

Term V, PGDM 2016-18

Session Duration: 90 Minutes per session

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Consulting hours	:	After 2:30 pm any day (subject to availability)

Course Introduction:
Forecasting is a decision-making tool used by many businesses to help in budgeting, planning, and estimating future growth. In the simplest terms, forecasting is the attempt to predict future outcomes based on past events and management insight. There are two forecast types: judgment-based (e.g. "gut feel") and quantitative (e.g. statistics). The most trustworthy forecasts combine both methods to support their strengths and mitigate their weaknesses. The uncertainties of the business environment make it imperative for business organizations to plan their future. Business Forecasting as a course introduces the participant to various tools and techniques that enable a more informed prediction of the future.

Course Objectives:

Learning Outcome	Description
L01 Subject Knowledge	• To make the students aware of the various tools and techniques in the area of business forecasting
L02 Concept Application	• To acquaint the students with various techniques of business forecasting
L03 Strategic Application	• To be able to apply the learnings of the course in different application areas using various softwares
L04 Communication	• To be able to convey the analytical results to the management in a jargon free easy to understand communication
L05 Responsible Business	• To be able to understand the *ethical and socio-cultural dimensions* and implications in business forecasting
L06 International Perspective	• To be able to understand and extrapolate the learnings in business forecasting in a global context.

Course Pedagogy:
The teaching methodology will be a combination of classroom lectures on the various techniques along with practical exercises. Students would also be made familiar with using computers for forecasting techniques. Project work would also be undertaken to understand application of forecasting in a real live scenario.

Course Readings

The following books are being referred for the course. However, as this is an elective course, it is expected that the students will make use of other materials which will be prescribed from time to time. Students are advised to read newspapers and business magazines of their choice on a regular basis to augment the classroom learning.

- Hoshmand, A.R. (2010). Business Forecasting: A Practical Approach. 2nd New York: Routledge.
- Evans, M.K. (2003). Practical Business Forecasting. 1st, Oxford: Blackwell Publisher.
- Hanke, J. and Wichern, D. (2009). Business Forecasting. 9th, New Jersey: Pearson Education Inc.
- Makridakis, S., Wheelwright, S. and Hyndman, R. (2012). Forecasting: Methods and Applications. 3rd New Delhi: Wiley India.

The above books would constitute essential reading for the course. However, the classroom lecture would be augmented by examples and discussions.

Course Evaluation Criteria:
The evaluation process for the course would constitute of the following:

Component	Weightage	Duration	Key Objectives Tested
Quiz	20%	15 minutes	L01
Participation	10%	Ongoing	L01 L04
Project	30%	Ongoing	L04
End Trimester	40%	2½ Hours	L01 L03 L04

The **quiz** would be online consisting of 20 questions drawn randomly from a question pool of about 100 questions based on the chapters covered till the date of the examination. The **Project** would be a live project. Students will have to collect data to analyze. After the analysis they will have to submit a written report which will be evaluated for 30%. For the **Class Participation** students would be continuously evaluated by the faculty and marks would be based on the quality of questions and interaction.

Software Used:
The course would use two softwares – MS Excel and Open Source Software gretl. Bulk of the work would be done in gretl but students are advised to be conversant with functions in MS Excel for the course. Datasets would be supplied as and when required for the analysis

Session Plan:
The following session plan would be adhered to by the faculty:

Session	Topic to be covered	Learning Objectives	Additional Resources
1.	**The Forecasting Perspective** *Why Forecast? Overview of Forecasting techniques, explanatory versus time series forecasting, the basic steps in forecasting*	L01	Chapter 1 HW / MWH
2.	**Basic Forecasting Tools – I** *Time Series and Cross Sectional Data, Graphical Summaries, Numerical Summaries, Measuring Forecasting Accuracy*	L01 L03	Review Business Statistics up to Correlation and Regression
3.	**Basic Forecasting Tools – II**	L01 L03	Review Test of Hypothesis

	Prediction Intervals, Least Squares Estimates, Transformation and Adjustments – Mathematical, Colander, Adjustment for Inflation and Population		
4.	**Introducing Gretl - I** Introduction to Gretl for Forecasting	*L01 L03*	*Reading – 1*
5.	**Time Series Decomposition – I** *Principles of Decomposition, Moving Averages (Simple, Centered, Double, Weighted) Local Regression Smoothing (Loess)*	*L01 L02 L03*	*Manual Calculation will be done*
6.	**Time Series Decomposition – II** *Additive Decomposition Techniques, Multiplicative Decomposition Techniques, Census Bureau Methods, STL Decomposition*	*L01 L02 L03*	Manual Calculation will be done
7.	**Exponential Smoothing Method** *Averaging Methods, Exponential Smoothing Methods – Single Exponential, Comparison of Methods*	*L01 L02 L03*	*Chapter 4 of HW / 3+4 of MWH*
8.	**Introduction to Gretl - II** Introduction to gretl for Forecasting	*L01 L03*	*Reading – 1*
9.	**Simple Regression Method** *Least Square Estimates, Understanding the Correlation Coefficient, Understanding the Regression Coefficients, Caution in using Simple Regression, inference and Forecasting with Simple Regression, Non-Linear Relationships*	*L01 L02 L03*	*Reading - 2*
10.	**Multiple Regression Method** *Introduction to Multiple Regression, Regression with Time Series, Checking for Independence with Residuals, Selecting Variables – The Long List, The Short List, Best Subset Regression, Stepwise Regression, Multicollinearity, The DW Statistics*	*L01 L02 L03*	Chapter 7 of HW and Chapter 6 of MHW
11.	**Econometric Modelling** *The basis of econometric Modelling, The Advantages and drawbacks of Econometric Modelling*	*L01 L02 L03*	*Chapter 8 of HW*
12.	**The Box Jenkins Methodology - I** *The ACF and the PACF, The White Noise Model, Examining Stationarity and Non-stationarity, Removing Non-Stationarity, The Random Walk Model, Seasonal Differencing*	*L01 L02 L03*	Chapter 9 of HW and Chapter 7 of MHW

13.	**The Box Jenkins Methodology – II** *The ACF and the PACF, The White Noise Model, Examining Stationarity and Non-stationarity, Removing Non-Stationarity, The Random Walk Model, Seasonal Differencing*	*L01 L02 L03*	Chapter 9 of HW and Chapter 7 of MHW
14.	**The ARMA Model - I** *AR(1), MA(1), Mixture Models ARMA(1,1), Identification, Estimating the Parameters, Diagnostic Check, Forecasting*	*L01 L02 L03*	Chapter 9 of HW and Chapter 7 of MHW
15.	**The ARMA Model - II** *AR(1), MA(1), Mixture Models ARMA(1,1), Identification, Estimating the Parameters, Diagnostic Check, Forecasting*	*L01 L02 L03*	Chapter 9 of HW and Chapter 7 of MHW
16.	**Forecasting the Long Term** *Cycles versus Long Term, Long Term Mega Economic Trends, Scenario Building*	*L01 L02 L03 L05 L06*	
17.	**Judgmental Forecasting** *The accuracy of judgmental forecasting, The nature of judgmental bias and limitation, Combining Statistics and Judgmental Forecasting*	*L01 L02 L03 L05*	Chapter 10 of HW and Chapter 10 of MHW
18.	**Implementing Forecasting** *What can and cannot be forecasted? Organisational Aspects of Forecasting? Extrapolative predictions versus creative insights, Forecasting the Future*	*L01 L02 L03*	Chapter 12 of MHW
19.	**Communicating Forecasts to the Management** *Forecasts and Their Use in Managerial Decisions, Presentation of Forecasts to Management, The Future of Business Forecasting*	*L01 L02 L03 L04 L05*	Chapter 11 of MHW
20.	**Doubt Clearing Session**	*L01 L02 L03*	