INTERNATIONAL MANAGEMENT INSTITUTE, BHUBANESWAR
PROGRAMME NAME: POST GRADUATE DIPLOMA IN MANAGEMENT
BUSINESS FORECASTING (MK-621)
CREDIT: (3 credits)
SESSION DURATION: 60 Minutes

TERM: VI
YEAR: 2019-2020
BATCH: PGDM 2018-20

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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 makes 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.

Learning Outcomes:
- To make the students aware of tools and techniques in business forecasting (L01)
- To acquaint the students with various techniques of business forecasting (L02)
- To be able to apply the learnings of the course in different application areas (L03)
- To be able to convey the analytical results to the management (L04)
- To be able to extrapolate business forecasting in multiple context (L05)

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 NY: Routledge. [ARH]
- Hanke, J. and Wichern, D. (2009). *Business Forecasting*. 9th, NJ: Pearson Education [HW]
- Makridakis, S., Wheelwright, S. and Hyndman, R. (2012). *Forecasting: Methods and Applications*. 3rd New Delhi: Wiley India. [MWH]

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
Class Quiz	10%	15 minutes	L01
Class Exercise	20%	Ongoing	L01 L04
Project Report	30%	Ongoing	L04
End Trimester	40%	2½ Hours	L01 L03 L04

Class 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.

Class Exercise*:* To provide students hands on calculation experience and understanding of the subject, the faculty would give out exercise sheets to the students. Students will have to solve the exercise in the sheet and submit the same to the faculty in the class. Evaluation would be done by faculty and the sheets returned to the students.

Project Report: 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%. The details would be provided in the class

End Term Examination*:* Will be based on analytics using softwares and would be conducted in the computer lab. The details would be communicated by the program office

Software Used: The course would use Open Source Software **gretl**. Bulk of the work would be done in **gretl** but students will also be exposed to MS Excel and other software as and when necessary. 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	**Introduction to Forecasting** *Is forecasting necessary? Types of Forecast? Why Forecast? Overview of Forecasting techniques, explanatory versus time series forecasting*	L01	Chapter 1 HW / MWH
2	**Introducing MS Excel** *Why MS-EXCEL? Referencing and MS-EXCEL Formulas, Data formats in MS-EXCEL, Special Functions in MS-EXCEL*	L01 L03	Any Good book on MS Excel or ITDM Notes
3-4	**Basic Forecasting Tools – I** *Time Series and Cross-Sectional Data, Graphical Summaries, Numerical Summaries, Measuring Forecasting Accuracy, Prediction Intervals, Least Squares Estimates, Transformation and Adjustments – Mathematical, Colander, Adjustment for Inflation and Population*	L01 L03	Any good book on Statistics and Review of Business Statistics Plus Chapter 3 of HW
5	**Introducing Gretl - I** Introduction to Gretl Software	L01 L03	*Reading – 1*

6-7	**Smoothing Method - I** *Exponential Smoothing Methods – Single Exponential, Double Exponential and Triple Exponential Method. Comparison of Methods*	L01 L02 L03	Manual Calculations would also be done. Calculator Required Plus Chapter 4 of HW and 3&4 of MWH
8	**Introduction to Gretl - II** Introduction to gretl advanced features	L01 L02	Class Notes
9-11	**Time Series Decomposition – I** *Principles of Decomposition, Moving Averages (Simple, Centered, Double, Weighted) Local Regression Smoothing (Loess) Additive Decomposition Techniques, Multiplicative Decomposition Techniques, Census Bureau Methods,*	L01 L02 L03	Manual Calculations would also be done. Calculator Required Plus Chapter 4 of HW and 3&4 of MWH Plus Class Notes
12-13	**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*	L01 L02 L03	Reading – 2 Plus Chapter 6 of HW and Chapter 5 of MWH
14-15	**Multiple Regression Method** *Introduction to Multiple Regression, Regression with Time Series, Selecting Variables – The Long List, The Short List, Best Subset Regression, Stepwise Regression*	L01 L02 L03	Chapter 7 of HW and Chapter 6 of MWH
16-17	**What happens when assumptions fail?** *Non-Linear Relationships, Auto Correlations, Serial Correlation, Heteroscedasticity, Non-normality of residuals, The DW test statistics, Test for linearity and normality*	L01 L03	Chapter 7 of HW and Chapter 6 of MWH
18	**Econometric Modelling** *The basis of econometric Modelling, The Advantages and drawbacks of Econometric Modelling*	L01 L02 L03	Chapter 8 of HW
19-20	**The Box Jenkins Methodology** *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 Chapter 7 of MWH
20-21	**The ARMA Model** *AR(1), MA(1), Mixture Models ARMA(1,1), Identification, Estimating the Parameters, Diagnostic Check, Forecasting*	L01 L02 L03	Chapter 9 of HW Chapter 7 of MWH

22	**Forecasting the Long Term** *Cycles versus Long Term, Long Term Mega Economic Trends, Scenario Building*	L01 L02 L03	Chapter 9 of MWH
23-24	**Judgmental Forecasting** *The accuracy of judgmental forecasting, The nature of judgmental bias and limitation, Combining Statistics and Judgmental Forecasting*	L01 L02 L03	Chapter 10 of HW and MWH
25	**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
26	**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	Chapter 11 of HW
27	**Special Forecasting Techniques** *Ehrenberg (1972) simple multiple brand model and share forecasting, First Order Markov Model*	L01 L02 L03 L05	Class Discussion
28-29	**Special Forecasting Techniques** *Bass model of innovation diffusion, ASSESSOR Model of repeat purchase*	L01 L02 L03 L05	Class Discussion
30	**Review of Methods and Doubt Clearing Session**	L01 L02 L03	Questions from Class

Plagiarism: We are committed to upholding the highest standards of academic integrity and honesty. Plagiarism is the use of or presentation of ideas, works that are not one's own and which are not common knowledge, without granting credit to the originator. You may refer the already available content just for your reference and to get the basic ideas. Only 20% of such content is acceptable, above that comes under the definition of Plagiarism which is unacceptable in IMI and will be treated seriously. All such cases will be referred to the appropriate body of the Institute for suitable disciplinary action.