



**DARBARI SETH BLOCK, INDIA HABITAT CENTRE,
LODHI ROAD, NEW DELHI**

**SUB: ELEVENTH MEETING OF THE ACADEMIC COUNCIL
AGENDA NOTES**

Date : 7 March 2005
Venue : Conference Room, TERI
Time : 11.00 am

Item No.	Particulars
Item No. 1	To confirm the minutes of the tenth meeting of the Academic Council held on 19 th October 2004
Item No. 2	To report the matters arising from the tenth meeting of the Academic Council held on 19 th October 2004
Item No. 3	Matters for information
Item No. 4	To report the decisions taken by the Executive Committee of the Academic Council on behalf on the Academic Council.
Item No. 5	To consider and approve M.A. (Regulatory Studies) programme courses for the second semester.
Item No. 6	Continuation of faculty member as Ph.D. Supervisor on leaving the School.
Item No. 7	Status of students on submission of thesis
Item No. 8	Any other item with the permission of the Chair.

Advanced studies school of



INDIA HEALTH CARE CENTER
11001 101/102/103

THE UNIVERSITY OF THE CALIFORNIA
SANTA BARBARA

Department of
Chemistry
Santa Barbara

Students

1. The first student to be admitted to the school was...
2. The second student to be admitted to the school was...
3. The third student to be admitted to the school was...
4. The fourth student to be admitted to the school was...
5. The fifth student to be admitted to the school was...
6. The sixth student to be admitted to the school was...
7. The seventh student to be admitted to the school was...
8. The eighth student to be admitted to the school was...
9. The ninth student to be admitted to the school was...
10. The tenth student to be admitted to the school was...

Item No. 1 To confirm the minutes of the tenth meeting of the Academic Council held on 19th October 2004

The minutes of the tenth meeting of the Academic Council held on 19th October 2004 were circulated to the members. No comments have been received so far.

The Academic Council may, therefore, consider confirming the minutes, as circulated.

Item No. 2 To report the matters arising from the tenth meeting of the Academic Council held on 19th October 2004

- (i) The Department of Policy Studies commenced the M.A. (Regulatory Studies) programme from 25th October 2004. Four students, including three from NTPC are undergoing the programme. The first semester of the programme has been completed successfully.

Item No. 3 Matters for information

- (i) Two Ph.D. students Ms Neeti Wilson and Mr Priyangshu Manab Sarma, have defended their Ph.D. theses successfully on 27 October 2004 and 9 November 2004 respectively.

- (ii) The School had advertised for faculty positions in the following areas:
- Environmental and Resource Economics
 - Environmental Sciences
 - Natural Resources Management
 - Statistics and Quantitative Methods
 - Governance and public policy
 - Finance
 - Law

A total of 163 applications have been received. The process of short listing has been completed and interviews of short listed candidates would be completed in this month of March 2005.

- (iii) Designs and plans for the new campus at Vasant Kunj have been cleared and a bhoomi poojan has been planned for 3rd March 2005.

- (iv) 17 students of the second year of the M.Sc programme have been assigned for their major project-fourth semester to various industries/organisation.

- (v) The School will be offering a new programme, M.A. Public Policy & Sustainable Development (PP&SD) which will commence on 5th October 2005. This programme is essentially for mid-career civil servants and is being sponsored by the Department of Personnel and Training, Ministry of Personnel, Government of India. TERI School has entered into a MoU with the Ministry for the conduct of this programme. The programme will also be offered to corporate sponsored candidates. The brochure of the programme is attached at Annexure 3.1

Item No. 4 To report the decisions taken by the Executive Committee of the Academic Council on behalf on the Academic Council.

(i) Major project of M.Sc. students:

In its meeting held on 12th January 2005 the Executive Committee approved, on behalf of the Academic Council, that the current M.Sc second year batch would be graded for major project – part one, (2 credits) on receipt of their synopses which the students would submit after joining their respective organizations. Grades awarded would be included in the SGPA for the fourth semester. The Academic Council is requested to concur.

A decision on whether this should be made a regular feature is also requested from the Academic Council.

(ii) Comprehensive Examination of Ms Pratibha Nair:

As per the rules of the School a Ph.D. student is required to clear the comprehensive examination within a period of 18 months from the date of joining.

Ph.D. student Ms Pratibha Nair was on maternity leave for a period of 135 days from 11 October 2004. The Executive Committee, on behalf of the Academic Council, approved her request for grant of 2 months extension as a special case, and permitted her to submit her synopsis by 31 March 2005.

The Academic Council is requested to concur.

(iii) Admission eligibility for M.Sc programmes

The Executive Committee, on behalf of the Academic Council, approved that the eligibility criteria for admission to the M.Sc (Natural Resources) and M.Sc (Environmental Studies) programmes should be “a Bachelors degree in

Science/Engineering or Economics /Math /Statistics/Geography” instead of the existing eligibility criteria wherein a candidate requires to have studied biology as a subject till atleast 10+2 level.

The Academic Council is requested to concur.

(iv) Names of experts on the panel of names for selection committees for faculty members

The Executive Committee on behalf of the Academic Council, by circulation recommended the addition of the following names to the panel of names to sit on selection committees for faculty appointment:

Prof Subashish Gangopadhyay
Director
India Development Foundation
249-F, Sector 18
Udyog Vihar, Phase IV
Gurgaon 122 015
Haryana, India
124-5014055

Prof P K Jain
Deptt. of Management Studies
Indian Institute of Technology, Delhi
New Delhi

The Academic Council is requested to concur.

Item No. 5 To consider and approve M.A. (Regulatory Studies) programme courses for the second semester.

Outlines for the following courses to be offered in the first semester are placed at Annexure 5.1.

- 1) RGS 122 - Financing of Infrastructure Projects
- 2) RGS 142 - Technical and Economic Aspects of Infrastructure
- 3) RGS 152 - Regulatory Law
- 4) RGS 172 – Quantitative Techniques for Regulatory Practice

These have been approved by the Board of Studies of the Department of Policy Studies. The Academic Council is requested to approve the courses.

Item No. 6 Continuation of faculty member as Ph.D. Supervisor on leaving the School.

As approved by the Academic Council, the supervisor of a Ph.D. student has to be a full time faculty member of the academic staff, or a recognised staff member of the School. The following two faculty members have left the School on leave/resignation. Names of the Ph.D. students they are supervising

are annotated alongside. The Academic Council is request to consider permitting them to continue as supervisors of the students as a special case.

Dr Meeta K Mehra (Leave) - Ms Susmita Sahu
Dr S Sreekesh (Resignation) - Mr P P Suryakant
Ms Deepshikha Sharma

Item No. 7 Status of students on submission of thesis

At present, students, at the time of submission of thesis, are asked to take clearance from the School. They then cease to be students and stop paying fees.

The Academic Council is request to discuss and approve the procedure to be followed.

Item No. 8 Any other item with the permission of the Chair.

*Manupadma datta
@ imt.ac.in*

M.A. (Regulatory Studies)**Course title: Financing of Infrastructure Projects****Course No: RGS 122**

Number of lectures-tutorials-practical: 47-9-0

Total Credits: 4

In this course the students receive an introduction to project finance structure, models, and risk mitigation strategies.

S. No.	Topic	Lectures	Tutorials	Practical
1	Introduction to Finance	6	1	
	Basic Financial Statements (Balance Sheet, Income Statement, Cash Flow Statement)			
	Financial Statement Analysis (Ratio Analysis)			
	Financial Planning			
2	Financial Analysis for Project Finance	5	1	
	NPV, FIRR, MIRR, Benefit-Cost Ratio and Payback periods			
	Determining Rate of Return for a project			
	Discount rates and comparable project analysis			
3	Risk	4	1	
	Capital Market Theory			
	Return and Risk: CAPM			
	Arbitrage Pricing Theory			
	Risk, Cost of Capital and Capital Budgeting			
4	Capital Structure	6	1	
	Capital Structure: Basic Concepts			
	Limits to the use of Debt			
	Valuation and Capital Budgeting for the levered firm			
5	Long Term Finance	4	1	
	Issuing securities to the Public			
	Long Term Debt			
	Leasing			
6	Options, Futures and Corporate Finance	5	1	
	Options and Corporate Finance			
	Extensions and Applications			
	Warrants and Convertibles			
	Derivatives and Hedging Risk			
7	Short Term Finance	5	1	
	Short term finance and planning			
	Cash Management			
8	Techniques for Project Finance Structuring	8	1	
	Feasibility Study Requirements: economic, financial, social, legal/regulatory and technical			

S. No.	Topic	Lectures	Tutorials	Practical
	Identification and Analysis of Project Risks			
	Building the right consortium for a BOO/BOT or concession infrastructure project			
	The security package for project agreements			
	Foundations and Fundamentals of project agreements			
	Foundations and fundamentals of a concession agreement: legal considerations			
9	Credit Enhancement Techniques and Innovations in Project Finance	4	1	
	International Co-financing Techniques			
	Securitization Techniques in Project Financing			
		47	9	

References

1. Brealey R. B & Myers, S. C., (2002) Principles of Corporate Finance, (TMH, N. Delhi)
2. Brigham, E. F and Houston, J. F (2004) "Fundamentals of Financial Management (Thomson, Singapore)
3. Khan, M. Y. and Jain, P. K. (2004) Financial Management. Text, Problems and Cases (Tata McGraw Hill, N. Delhi)
4. Ross, Wester field and Jordan, (2003), Fundamentals of Corporate Finance (TMH, N. Delhi).

M.A. (Regulatory Studies)

Course title: Technical and Economic Aspects of Infrastructure

Course No: RGS 142

Number of Credits: 4 (3-1-0)

Number of lectures-tutorials-practical: 47-15-0

Course Outline:

The course will enhance the understanding of the operations of network industries (Electricity and Telecommunications) in the conventionally vertically integrated environment vis-à-vis the restructured environment. The course is offered in two modules; the technical and economic aspects of Electricity Supply Industry are discussed in Module-I and Module-II deals with these aspects in the Telecommunications industry.

In the Module-I, the students are exposed to several complexities involved in restructuring and the new issues that have surfaced. Chapter – I discusses the basic concepts of the economic operation of the utility in a vertically integrated environment. In the background of the first two chapters, chapter – II examines various issues pertaining to system operation when many activities of the system operation have been taken over by different entities and the independent system operator (ISO) is responsible for coordination of the activities of various players in order to maintain the system security and reliability. In the restructured scenario, the transmission is the nucleus of competition among geographically dispersed generators and customers (distribution companies or large customers). The trend of establishing legal and regulatory frameworks offering third party open access to the transmission network is a logical outcome in this context. Chapter –III discusses transmission open access and pricing issues.

Chapter-I in module-II provides with the background knowledge concerning the technology and regulatory debate in the telecommunications industry. Chapter-II starts with a description of the implications of economic reasoning for the setting of access charges and leads to an in-depth discussion of four possible access policies and their variants: embedded costs, forward looking costs, efficient component pricing rule and global price caps.

S. No.	Topics	Lectures	Tutorials	Practical
Module 1: Technical and Economic Aspects of Electricity Supply Industry				
1.	Power System Economic Operation Overview	14	6	
	<i>Economic Load Dispatch</i>	6		
	<i>Optimal Power Flow – Determination of prices for real and reactive power</i>	4	2	
	<i>Unit Commitment</i>	2	1	
	<i>Formation of Power Pools: Power Pools and Energy Brokerage</i>	2	3	

S. No.	Topics	Lectures	Tutorials	Practical
2.	Power System Operation in a Competitive Environment	7	3	
	<i>Role of the Independent System Operator (ISO) – Examples from UK Market, Nordic Pool and the Pools in the USA</i>	2		
	<i>Operational Planning Activities of ISO – Auctions in power pools</i>	2	1	
	<i>Operational Planning Activities of a GENCO – Genco in pool markets, Genco in bilateral markets, Market participation issues, Unit commitment in deregulated environment, Competitive Bidding</i>	3	2	
3.	Transmission Open Access and Pricing Issues	12	4	
	<i>Power Wheeling</i>	1		
	<i>Transmission Open Access – types of transmission services in open access</i>	1		
	<i>Cost components in transmission, Pricing of power transactions</i>	1		
	<i>Transmission Open Access and alternative pricing mechanisms – Developments in International Transmission Pricing</i>	3	2	
	<i>FTR obligations and options, price formation, gaming and market power</i>	3	2	
	<i>Congestion management in deregulation</i>	2		
Module 2: Technical and Economic Aspects of Telecommunications				
1	Restructuring of the Telecommunications market	2		
	Market Structure – International and Indian experience	1		
	Regulatory Reforms	1		
2	Essential Facility and One-way access: Theory and Policy	12	2	
	Economic Principles of Interconnection	1		

S. No.	Topics	Lectures	Tutorials	Practical
	Multiple goals for interconnection charges – Entrants’ Market Power, Bypass and network duplication, Access charges and incentives for cost minimization,	4		
	Issues for the design of access policies	1		
	Cost based pricing of access, regulated and deregulated segments: problem of cross-subsidies, Forward looking long-run incremental cost, Cost based access pricing and exclusion, ECPR and its applications, Global Price Cap, Global Price Caps and incentives to exclude	6	2	

Textbooks / Papers:

1. Bhattacharya, K., Bollen, H.J. Math, Daadler, Jaap E.; *Operation of Restructured Power Systems*, Kluwer Academic Publishers (2001). (FOR MODULE I)
2. Laffont, Jean-Jacques, Tirole, Jean; *Competition in Telecommunications*, The MIT Press (2000). (FOR MODULE-II)
3. Merchant Transmission Investment, Paul Joskow and Jean Tirole, 2004, Cambridge-MIT Institute
4. Transmission Market Design, William W. Hogan, Center for Business and Government, JF Kennedy School of Government
5. Financial Transmission Right Formulations, W.W. Hogan, 2002, Center for Business and Government, JF Kennedy School of Government
6. Stoft S, Using Game Theory to Study Market Power in Simple Networks, IEEE Winter Power Meeting, H. Singh Ed., 1999
7. Stoft S, “Financial Transmission Rights Meet Cournot: How TCC’s curb market Power,” *The Energy Journal*, 20: 1-23, 1999
8. Steven Stoft, *Power System Economics, Designing Markets for Electricity*, IEEE Press, Wiley-Interscience, 2002

Interested student may also refer

1. Sheble, Gerald B.; *Computational Auction Mechanisms for Restructured Power Industry Operation*, Kluwer Academic Publishers (1999).
2. Chao, Hung-po, Hungtington, Hillard G. (Eds), *Designing Competitive Electricity Markets*, Kluwer Academic Publishers (1998)

3. M. Ilic, F. Galiana and L Fink: Power System Restructuring: Engineering and Economics, Kluwer Academic Publishers 1998.
4. M. Shahidehpour and M. Alomoush, Restructured Electrical Power Systems: Operation, Trading and Volatility, Marcel Dekker Inc. 2001.
5. L.L. Lie, Power System Restructuring and Deregulation, John Wiley & Sons, UK, 2002
6. L. Philipson and H.L. Willis, Understanding Electric Utilities and Deregulation", Marcel Dekker Inc. 1999.

M.A. (REGULATORY STUDIES)

Course Title: Regulatory Law

Course No: RGS 152

Number of Credits: 4

Number of lectures –tutorials: 42-14

Course Outline

The course will examine the evolution of regulatory law and jurisprudence as part of Administrative Law, and focus on the role of regulatory agencies in addressing issues of public policy.

The development of regulatory legal jurisprudence in India will be covered through a study of orders of regulatory commissions, judgments of the appellate authorities and the decisions of the High Court and Supreme Court. The course will look at certain parameters of sound regulation and see how those parameters have been addressed in the regulatory law, and through regulatory processes and decisions. The course will also include a comparative analysis of regulatory law and of the design and structure of regulatory agencies in North America, select countries of Europe, Latin America and South Asia

Course Structure and Content

No	Module	L	T	Essential Readings
1	Regulatory law	14	3	
	Theories of regulation-genesis of Independent regulation-legal basis and constitutional validity	2		Halsbury's Laws of India, Volume 1, Administrative Law, LexisNexis Butterorths, New Delhi 2004
	Sector specific regulatory legislation in India-design and structure of regulators-scope and functions-regulatory process-provisions for supervision and appeals - relationship with the executive - politics of regulation-law relating to issue of policy directives	3	1	The Constitution of India, selective comments by P M Bakshi, Universal Law publishing LTD.
	Relationship between regulators-sectoral regulators and competition Issues - potential for conflict of jurisdiction - cooperation amongst agencies – International best practices-possibility of Integrated regulator	3		Baldwin, R. and C. McCrudden. Regulation and Public Law. London: Weidenfeld & Nicolson, 1987
	Regulation through contracts, concession agreements and licences - changes in tariff and other parameters during validity of concession agreements-renegotiations-force	3	1	Singh, Dr. Avtar -- Law of Contract & Specific Relief, 8th Edition 2004 Jan Ramberg, International Commercial Transactions, Second Edition, Kluwer, 2000 Corpus juris 2 nd , electricity tariff

No	Module	L	T	Essential Readings
	<p>majeure-dispute resolution</p> <p>Judicial Intervention in Regulatory process and decision making - jurisprudence relating to review and appeals-expert appellate tribunals – functions and jurisdiction</p> <p>Learning objective: This module aims to provide a basic grounding in the various aspects of regulatory governance and in the law and jurisprudence relating to the establishment and functioning of regulatory agencies.</p>	3	1	<p>setting</p> <p>Xenophon A Yataganas, “Delegation of Regulatory Authority in the European Union. The Relevance of the American Model of Independent agencies”, Jean Monnet Working Paper 301</p> <p>S K Sarkar, Vivek Sharma (ed) Legal Aspects of Regulation in South Asia, Teri 2002</p> <p>Regulatory Compendium, TERI</p>
3	Parameters to measure regulatory outcomes	16	6	
	<p>Tariff rationalisation -Legal provisions relating to price fixation -subsidy- cross subsidy-central and state government polices on subsidy-tariff review cases-regulatory orders and appeals to courts in tariff fixing</p> <p>Quality of Service and consumer interest Delivery of service- efficiency- Consumer satisfaction-regulations- redressal mechanisms by licensee, utility and the regulator- efficiency and failures of redressal system- COPRA – relationship with consumer court</p> <p>Competition Issues Promoting and maintaining competition – regulators’ mandate – jurisdiction issues</p> <p>Universal Service Obligation-public policy objectives-legal provisions- citizen’s rights -rights and obligation of licensee--role of state and regulator</p> <p>Learning objective:</p>	<p>4</p> <p>4</p> <p>4</p> <p>4</p>	<p>2</p> <p>2</p> <p>1</p> <p>1</p>	<p>The relevant legislations</p> <p>Regulatory Compendium, TERI</p> <p>Cases in electricity, telecom and infrastructure</p> <p>Various regulations on interconnection</p> <p>Framework for consumer redressal mechanisms Consumer protection Act Ombudsman regulations</p> <p>Roskilde, Electricity Reform: Social and Environmental Challenges, UNEP 2003</p> <p>D Naurosh, Power Politics, Equity and Environment in Electricity Reforms, World Resources</p>

No	Module	L	T	Essential Readings
	This module seeks to assess the performance of regulators ,and the impact of regulation , using certain parameters. These include the concept of USO, tariff issues, quality of service and promotion of competition.			Institute 2002
4	Comparative international regulatory law	8	3	
	Regulatory law and jurisprudence in North America, U.K, Argentina and South Asia –comparative analysis of design and structure –case studies of regulatory performance-rail regulation in U.K. and electricity regulation in California Learning objective: This model is intended to provide a comparative analysis of the law, design and regulation in some select jurisdictions to identify international best practices and see how these have been addressed in India.	4 4	1 2	Kagan, R. A. (1997) ‘Should Europe Worry About Adversarial Legalism?’ Oxford Journal of Legal Studies, 17(2), Ricardo and Mauricio, Regulatory Performance analysis case study: Britain’s electricity industry, Energy Policy, 32 (2004) Electricity directive 2003/54/EC and Regulation 1228/2003 Government of Canada Regulatory Policy – 1999 and Canadian Telecommunications Act, 1993 Dwayne Winseck, Power Shift?: Towards a Political Economy of Canadian Telecommunications and Regulation, Volume 20, Number 1, 1995, Canadian Journal of Communication David Salant, Auctions for Transmission Capacity Rights: The Empire Connection Experience, The Electricity Journal Volume 18, Issue 1, January-February 2005
5	International Dispute Settlement Mechanism	4	2	
	International dispute settlement system-			Arnab Kumar Hazra, The Law and Economics of Dispute

No	Module	L	T	Essential Readings
	<p>WTO-DSB- Arbitration- UNCITRAL - conciliation and settlement-Applicable laws – venue – enforcement of awards–harmonisation issues</p> <p><u>Learning objective:</u> This module will cover the mechanisms for resolving international disputes</p>	4	2	<p>Resolution in India. New Delhi, Bookwell, 2003</p> <p>Adjudication of disputes under the relevant legislations, Like Electricity Act 2003, TRAI Act, FERC, EU experience.</p> <p>J. G. Merrills, International Dispute Settlement, by, Cambridge University Press; 3rd edition,</p> <p>www.wto.org</p>

Essential Readings

Regulatory Compendium, TERI (2005)

Sidney A. Shapiro, John M. Rounds and Joseph P. Tomain, Regulatory Law and Policy: Cases and Materials, Third Edition, Matthew Bender (2003)

Baldwin, R., Scott, C., Hood, C. A reader on regulation, Oxford: Oxford University Press (1998)

William A. Fischel, Regulatory Takings: Law, Economics, and Politics, Harvard University Press 1995

David H. Rosenbloom and Richard D. Schwartz, Handbook of Regulation And Administrative Law. New York: Marcel Dekker, 1994

Viscusi, W.K., Vernon, J.V., and Harrington, J.E. Economics of Regulation and Antitrust, Third Edition, Cambridge, Massachusetts: the MIT press 2000

Roskilde, Electricity Reform: Social and Environmental Challenges, UNEP 2003

D Naurosh, Power Politics, Equity and Environment in Electricity Reforms, World Resources Institute 2002

Joel Ruet, Privatising Power Cuts? Ownership and reform of State Electricity Boards, Academic Foundation 2005

Berg, S. (2000a) 'Developments in Best-Practice Regulation: Principles, Processes, and Performance', The Electricity Journal, July,

Berg, S. (2000b) 'Sustainable regulatory systems: laws, resources, and values', *Utilities Policy*, 9 (2000),

Arnab Kumar Hazra, *The Law and Economics of Dispute Resolution in India*. New Delhi, Bookwell, 2003

N.D. Basu on *Law of Arbitration and Conciliation*, Thoroughly Revised by P.K. Majumdar. Reprint. New Delhi, Orient Publishing, 2003

Reports on India's Power Sector, Academic Foundation 2003

Piyush Joshi, *Law Relating to Infrastructure Projects*, 2nd Butterworths (2003)

Stern, J. and Holder, S. 'Regulatory governance: criteria for assessing the performance of regulatory systems: An application to infrastructure industries in the developing countries of Asia', *Utilities Policy*, 8 (1999)

Kagan, R. A. (1997) 'Should Europe Worry About Adversarial Legalism?' *Oxford Journal of Legal Studies*, 17(2),

Kagan, R. A. and Axelrad, L. (Eds.) (2000) *Regulatory encounters: multinational corporations and American adversarial legalism*, Berkeley and Los Angeles, California: University of California Press.

Nivola, P. S. (Ed.) (1997) *Comparative Disadvantages? Social Regulation and the Global Economy*, Washington D.C.: Brookings Institution Press.

André Krouwel, *The Law and Economics of Economic Regulation in India*. New Delhi: New York, 2002.

21. *Principles of Arbitration and Conciliation*. 10th ed. Revised by P.K. Malhotra. New Delhi: Orient Blackout, 2002.

Principles of Law's Faculty. Academic Foundation, 2002.

Principles of Law: Texts to Infrastructure Projects. 2nd ed. Butterworths (2002).

22. *Principles of Law: Texts to Infrastructure Projects*. 2nd ed. Butterworths (2002).
23. *Principles of Law: Texts to Infrastructure Projects*. 2nd ed. Butterworths (2002).
24. *Principles of Law: Texts to Infrastructure Projects*. 2nd ed. Butterworths (2002).

25. *Principles of Law: Texts to Infrastructure Projects*. 2nd ed. Butterworths (2002).
26. *Principles of Law: Texts to Infrastructure Projects*. 2nd ed. Butterworths (2002).

27. *Principles of Law: Texts to Infrastructure Projects*. 2nd ed. Butterworths (2002).
28. *Principles of Law: Texts to Infrastructure Projects*. 2nd ed. Butterworths (2002).

29. *Principles of Law: Texts to Infrastructure Projects*. 2nd ed. Butterworths (2002).
30. *Principles of Law: Texts to Infrastructure Projects*. 2nd ed. Butterworths (2002).

M.A. (Regulatory Studies)

Course title: Quantitative Techniques for Regulatory Practice

Course No: RGS 172

Number of Credits: 4

Number of lectures-tutorials-practical: 51-3-17

Course Outline:

This course is aimed at teaching application of quantitative techniques from both a technical and practical perspective to the students of Regulatory Studies. Over recent years, the use of quantitative analysis in regulation and antitrust has increased for a variety of reasons inter alia, the development of modern and fairly reliable quantitative techniques, advancements in user-friendly software and cheap hardware, availability of more and better data and, not least, an increasing use of economists and economic evidence, by regulatory and antitrust authorities and the companies concerned. The course can be seen as divided into two modules: the Technical module and the Application module.

The Technical module assumes that the students have been exposed to two-variable regression and the fundamentals of statistical inference and hypothesis testing in semester-I. The aim of this module is to equip the students with econometric tools for the estimation of demand and supply functions, market power, demand forecasting, probabilities of default and efficiency measurement.

The application module is based on the report titled "Quantitative Techniques in Competition Analysis" prepared for the Office of Fair Trading by LECG ltd.

S. No.	Topic	Lectures	Tutorials	Practical
1.	Introduction to Matrix Algebra. (i) Basic definitions and operations. (ii) The matrix approach to OLS.	2	1	
2.	Multiple regression analysis, statistical inferences, and hypothesis testing • Estimation of multiple regression • Statistical inferences and hypothesis testing • Prediction	6	1	
3.	Tests of the k-variable Linear Equation for specification error a) Specification Error b) Model Evaluation and Diagnostic Tests c) Tests of parameter constancy d) Tests of Structural Change e) Dummy Variables	4	1	
4.	Relaxing the assumptions of the classical model	4	1	

S. No.	Topic	Lectures	Tutorials	Practical
	<ul style="list-style-type: none"> • Autocorrelation: definition, consequences, and remedies • Heteroscedasticity: definition, consequences and remedies 			
5.	Maximum Likelihood, Generalized Least Squares and Instrumental Variable Estimators	3		
6.	Univariate Time Series Modeling <ul style="list-style-type: none"> • AR, MA and ARMA Processes • Testing for stationarity • Identification, Estimation and Testing of ARIMA Models • Forecasting • Seasonality 	4		2
7.	Dynamic Price Analysis and Cointegration Analysis Techniques that are used to determine the extent of the market and to analyze the mechanisms by which price changes are transmitted across products or geographic areas.	2		1
8.	Limited dependent variable models: the Logit model and the Probit Model	2		1
9.	Simultaneous equation models (i) Endogeneity (ii) Properties of OLS estimators (iii) Identification (iv) Hausman specification test (v) ILS and 2SLS	3		1
10.	Panel data models: fixed effect models and random effect models	3		1
11.	Stochastic Frontier Estimation	2		
Application Module				
12.	Price Concentration Studies based on Structure-Conduct-Performance Model Analyze how market structure influences the performance of market participants via their conduct (e.g. Does a merger raise anti-competitive concerns?),	2		2
13.	Demand Analysis and Forecasting Residual demand facing a firm or a group of firms is the demand function specifying the	4		2

S. No.	Topic	Lectures	Tutorials	Practical
	level of sales made by the firm or group as a function of the price they charge. The estimation of the residual demand allows the analyst to understand the competitive behavior of a firm or group of firms, by accounting for supply substitution effects			
14.	<p>Analysis of Differentiated Products: Estimation of Demand Systems</p> <p>Based on articles by Hausman, Leonard and Zona (1994) and by Hausman and Leonard (1997) where a methodology has been developed to compute the likely price increase resulting from a proposed merger using econometric estimates of the matrix of market elasticities.</p>	2		2
15.	<p>Import Penetration tests</p> <p>Analyze whether foreign producers could thwart any attempt by domestic producers to raise prices</p>	2		1
16.	<p>Bidding Studies</p> <p>Auctions are characterized by informational asymmetries, as each bidder does not know what the competitors are bidding. This has serious implications for antitrust analysis. In circumstances where there are repeated bids there is a strong incentive for some of the bidders to collude and form a cartel. Among bidding studies, of particular importance are those aimed at detecting bid rigging in order to stop or prevent the anti-competitive behavior of a cartel of bidders</p>	2		1
17.	<p>Regression Analysis for Efficiency Estimation</p> <p>Information asymmetries between the regulator and the firm reduce the efficacy of regulation. The regulator, hence ought to use all available information to reduce these asymmetries. One way of learning about the technology parameter is to compare the firm's performance to that of other firms facing a similar technological environment. The</p>	2		1

S. No.	Topic	Lectures	Tutorials	Practical
	section teaches estimation of relative efficiency for designing incentive regulations and measurement of productivity change through Stochastic Frontier Analysis and Data Envelopment Analysis			
18.	Data Envelopment Analysis, Total Factor Productivity (Measuring X)	2		1
	Total	51	3	17

Textbooks / Reports:

1. Gujarati, D. Basic Econometrics, McGraw Hill.
2. Wooldridge, J., Introductory Econometrics, Thompson
3. Johnston J., J. DiNardo. Econometric Methods, McGraw Hill
4. Greene, W.W., Econometric Analysis, Pearson Education Inc.
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