



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

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

Date : 12<sup>th</sup> July '06  
Venue : Conference Room, TERI  
Time : 3.00 pm

<b>Item No.</b>	<b>Particulars</b>
Item No. 1	To confirm the minutes of the thirteenth meeting of the Academic Council held on 30 December 2005
Item No. 2	Matters for information
Item No. 3	To report the decisions taken by the Executive Committee of the Academic Council on behalf on the Academic Council.
Item No. 4	To discuss the research agenda of the School.
Item No. 5	To consider and approve courses of the second semester for the M.A (Public Policy and Sustainable Development) programme.
Item No. 6	To consider and approve courses of the first semester for the MBA (Infrastructure) programme.
Item No. 7	To consider and approve amendments to courses in the M.Sc. programmes.
Item No. 8	Any other item with the permission of the Chair.

**Item No. 1 To confirm the minutes of the thirteenth meeting of the Academic Council held on 30 December 2005**

The minutes of the thirteenth meeting of the Academic Council held on 30 December 2005 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 Matters for information**

(i) The MA (Public Policy and Sustainable Development) programme commenced from 2<sup>nd</sup> January 2006. A total of 16 Indian civil servants and one from the Bhutanese civil service have successfully completed the first semester of the programme. Thereafter, they have completed a five week exposure at the University of Texas at Austin and one week at the Yale University, studying modules on public policy and related aspects.

(ii) 18 students have successfully completed all requirements for grant of the M.Sc. (Environmental Studies) and M.Sc. (Natural Resources Management) programme.

The School's placement cell has helped in placing these students in the following organisations:

- a. ACC = 5
- b. CII = 1
- c. Indian Wind Energy Association = 1
- d. Department of Environment, Delhi Government = 3

In addition, two students have been admitted to the Pennsylvania State University and the Yale University.

(iii) The MBA (Infrastructure) programme is scheduled to commence on 17<sup>th</sup> July '06. It will be run in two streams, which will have common courses for the first year. Stream 1, for fresh graduates will have five students whilst Stream 2 for experienced candidates will have nine students.

(iv) NHPC has agreed to provide a Chair for the MBA (Infrastructure) programme linked with one student from NHPC attending the programme for five years.

(v) Since the last Academic Council meeting, 2 more students have completed their requirements for the award of Ph.D. degree.

(vi) The first convocation of the School is planned to be held on 16<sup>th</sup> October '06

- (vii) The construction work for the School's campus at Vasant Kunj is continuing. It is expected that it will be ready for occupation by January-February 2007.

**Item No. 3 To report the decisions taken by the Executive Committee of the Academic Council on behalf on the Academic Council.**

**(i) Pre Ph.D. course work**

The Executive Committee, on behalf of the Academic Council, approved the following:

- a) RPR 201- Communication Skills course would continue as a compulsory non credit course.
- b) RPR 203 – Introductory Statistics and NRS 173 – Research Methods would be non compulsory credit courses.

**(ii) M.Sc. admission procedure**

The Executive Committee, on behalf of the Academic Council, approved the following eligibility criteria for the M.Sc. entrance procedure:

60% for Bachelor's of Science, Maths and Engineering

55% for Bachelor's of Humanities subjects.

**(iii) M.B.A admission procedure**

The Executive Committee, on behalf of the Academic Council, approved that the admission procedure for the M.B.A (Infrastructure) programme would include a group discussion and interview to be held at the School.

The Academic Council is request to approve.

**Item No. 4 To discuss the research agenda of the School.**

As suggested in the last Academic Council meeting, the Deans of the two Faculties would present the research agenda of their Faculties.

The Academic Council is requested to discuss and approve.

**Item No. 5 To consider and approve courses of the second semester for the M.A (Public Policy and Sustainable Development) programme.**

The course outlines for the courses which will be offered in the second semester of the MA (PP&SD) programme are placed at Annexure 5.1 and Annexure 5.2. These have been approved by the Board of Studies of the Department of Policy Studies in its meeting held on 3<sup>rd</sup> July '06. The Academic Council is requested to consider and approve the course outlines.

**Item No. 6 To consider and approve courses of the first semester for the MBA (Infrastructure) programme.**

The course outlines for the courses which will be offered in the first semester of the M.B.A (Infrastructure) programme are placed at Annexure 6.1, Annexure 6.2 and Annexure 6.3. These have been approved by the Board of Studies of the Department of Policy Studies in its meeting held on 3<sup>rd</sup> July '06. The Academic Council is requested to consider and approve the course outlines.

**Item No. 7 To consider and approve amendments to courses in the M.Sc. programmes.**

Keeping in mind feedback received from organisations where students have done their major projects and where students have been finally placed, some of the M.Sc. courses have been amended/ restructured. The course outlines for the M.Sc. programmes are placed at Annexure 7.1 and 7.2. These have been approved by the Board of Studies of the Department of Natural Resources in its meeting held on 5<sup>th</sup> July '06. The Academic Council is requested to consider and approve the course outlines.

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

Course No.:	PPS 162
Course title:	<b>Administration of Public and Not-for-profit Organisations</b>
Number of credits:	3-0-0
Number of lectures-tutorial practicals:	38-4-0
Course coordinator:	Ms Avantika Singh

### Course outline

The objective of this course is to enable participants to develop a holistic understanding of issues and challenges in the administration of public and not-for-profit organisations. The specialisation will enable participants understand characteristics of public organisations, the nature of bureaucracy, and key issues in administration. The first part of the course lays emphasis on the management of public organisations as an interdisciplinary field of study, and builds on the foundations of public administration, political science and management. The latter part of the course is focused on the management, structure, and operation of nonprofit organisations. The course will enable students to analyse management problems and concerns in not-for-profit organisations and to set them within broader policy contexts. The course focuses on applicability of generic management practices to performance of functions in governmental as well as non-governmental context.

### Evaluation procedure

(Percentage of marks to be allotted to each type of test/activity)

▪ Minor tests	20%
▪ End-term examination	30%
▪ Term paper	50%
– Outline	10%
– Presentation	20%
– Report	20%

### Details of course contents and allotted time

Sr. No.	Topic	Allotted time (hours)	
		Lecture	Tutorial
1.	<b>Module 1: Introduction to Public Organisations</b> <ul style="list-style-type: none"> <li>• Introduction to public organisations</li> <li>• Organisational structure, bureaucracy</li> <li>• Policy implementation by street-level bureaucracy</li> </ul>	2	
2.	<b>Module 2: Introduction to Not-For-Profit Organisations</b> <ul style="list-style-type: none"> <li>• Emergence of the “Third Sector”</li> <li>• Theorisations of “Civil Society”</li> <li>• Typologies of not-for-profit organisations</li> </ul>	4	
3.	<b>Module 3: New Public Management (NPM)</b> <ul style="list-style-type: none"> <li>• Discourse on governance and NPM</li> <li>• Shift from public administration to NPM</li> <li>• Effectiveness and efficiency in public organisations</li> </ul>	8	

Sr. No.	Topic	Allotted time (hours)	
		Lecture	Tutorial
4.	<b>Module 4: Leadership and Managing Change in Public and NPOs</b> <ul style="list-style-type: none"> <li>• Leadership</li> <li>• Management of change</li> </ul>	4	
5.	<b>Module 5: Managing Strategy in Public and NPOs</b> <ul style="list-style-type: none"> <li>• Strategic management</li> <li>• Stakeholder analysis</li> </ul>	4	
6.	<b>Module 6: Finance in Public and NPOs</b> <ul style="list-style-type: none"> <li>• Financial management</li> </ul>	4	
7.	<b>Module 7: Control Systems in Public and NPOs</b> <ul style="list-style-type: none"> <li>• Management Information Systems</li> <li>• Performance management and control systems in public and not for profit organisations</li> </ul>	4	
8.	<b>Module 8: Accountability of Public and NPOs</b> <ul style="list-style-type: none"> <li>• <b>Transparency and Accountability in Government</b></li> <li>• Accountability and Legitimacy of NPOs</li> </ul>	4	
9.	<b>Module 9: Managing Relations in Public and NPOs</b> <ul style="list-style-type: none"> <li>• Managing intergovernmental relations</li> <li>• Managing NPO-government relations</li> <li>• Managing donor relationships <ul style="list-style-type: none"> <li>○ Multilateralism</li> <li>○ Bilateralism</li> </ul> </li> </ul>	4	
10.	<b>Presentations by Students</b>		4
	<b>Total</b>	<b>38</b>	<b>4</b>

### Text books

1. Edwards, Michael and David Hulme (1995) *Non-Governmental Organisations - Accountability and Performance: Beyond the Magic Bullet*. London: Earthscan.
2. Korten, David C. (1990) *Getting to the 21st Century: Voluntary Action and the Global Agenda*. West Hartford: Kumarian Press.
3. Peters, B.G. and Jon Pierre (2003) *Handbook of Public Administration*. London: Sage.

### Suggested readings

1. Barzelay, Michael (2001) *The New Public Management: Improving Research and Policy Dialogue*. Berkeley: University of California Press.

2. Boyle, R. (1989) *Managing Public Sector Performance: A Comparative Study of Performance Monitoring Systems in the Public and Private Sectors*. Dublin: Institute of Public Administration.
3. Edwards, Michael and David Hulme (eds.) (1997) *NGOs, States and Donors: Too Close for Comfort?* Basingstoke: Macmillan.
4. Fowler, A. *Striking a Balance: A Guide to Enhancing the Effectiveness of NGOs in International Development*. London: Earthscan.
5. Heady, F. (1996) *Public Administration: A Comparative Perspective*, 5<sup>th</sup> ed. New York: Marcel Dekker.
6. Hood, Christopher (2000) *The Art of the State: Culture, Rhetoric, and Public Management*. Oxford University Press.
7. Howell, Jude and Jenny Pearce (2001) *Civil Society and Development: A Critical Exploration*. Boulder: Lynne Rienner.
8. Lewis, David (2001) *The Management of Non-Governmental Development Organisations: An Introduction*. London: Routledge.
9. Lewis, David and T. Wallace, (eds.) (2000) *New Roles and Relevance: Development NGOs and the Challenge of Change*. West Hartford: Kumarian Press.
10. Page, E.C. (1992) *Political Authority and Bureaucratic Power*, 2<sup>nd</sup> ed. New York: Harvester Wheatsheaf.
11. Peters, B.G. (2001) *The Politics of Bureaucracy: A Comparative Perspective*, 5<sup>th</sup> ed. London: Routledge.
12. Pierre, Jon (ed.), (1995) *Bureaucracy in the Modern State: An Introduction to Comparative Public Administration*. Aldershot: Edward Elgar.
13. Simon, Herbert A., Donald W. Smithburg, Victor A. Thompson (1991) *Public Administration*, Piscataway: Transaction Publishers.
14. Sogge, David (ed.) (2002) *Give and Take: What's the Matter with Foreign Aid?* London: Zed Books.
15. Turner, Michael and David Hulme (1997) *Governance, Administration & Development*. London: Macmillan.





Sr. No	Topic	Time allotted (Hours)	
		Lectures	Tutorials
7.	<b>An overview of assessment and monitoring techniques of biodiversity</b> Methods of assessing and monitoring biodiversity; sampling techniques; Biodiversity Impact Assessment	2	
8.	<b>Value of Biodiversity</b> Direct and indirect values; total economic value; ethical values; an overview of different valuation techniques used to assess biodiversity	2	
9.	<b>Causes and consequences of biodiversity Loss:</b> Rate of extinction of biodiversity; Red data books; Causes of biodiversity loss; endemic, rare and threatened species; Impact of pollution and global climate change on biodiversity; Consequences of biodiversity loss	4	
10.	<b>Conservation strategies: Ecological basis of biodiversity conservation</b> <i>In situ</i> conservation: Gap analysis; Establishment of protected areas; Design and management of protected areas; Connectivity and corridors <i>An overview of the Ex-situ</i> conservation methods Captive breeding, reintroduction	3	
11.	<b>Ecological restoration</b> Philosophy of ecorestoration, Methods of restoration, factors affecting ecorestoration task, community participation in ecorestoration; Case studies from wetland, terrestrial and mountain ecosystems	3	
12.	<b>Urban ecosystem management:</b> Structural and functional components of urban ecosystems, Factors controlling urban environments, Inventory of urban plants, managing urban ecosystems	4	
13.	Community involvement in maintaining ecosystems and biodiversity	4	
14.	An overview of Biodiversity Legislations; international agreements for the protection of species and habitats; Biodiversity act; Emerging International Policies	2	
15.	Invasive species, genetically modified plants and Indicator species: their role and impact on ecosystem stability and biodiversity	2	

Sr. No	Topic	Time allotted (Hours)	
		Lectures	Tutorials
16.	Impact of climate change on biodiversity with special emphasis on vulnerable ecosystems	2	
	<b>Total</b>	<b>42</b>	

### Suggested readings

1. E. P. Odum. *Fundamentals of Ecology*. Natraj Publishers, Dehradun. (Chapters: 5,6,8,15, 18)
- 2.
3. Richard B. Primack. 1998. *Essentials of conservation biology* Sinauer Associates Inc., USA
4. Barnes, Zak, Denton and Spurr. *Forest Ecology 1988, 4th edition*. John Wiley and Sons, New York (Chapter 5)
5. Meffe, G. K. and Carroll, R. L. 1997. *Principles of conservation biology*. Second edition. Sinauer Associates Inc., USA. (Chapters: 1,5, 10, 13, 15-19)

### Other readings

1. Hunter, M. L. 2001. *Fundamentals of conservation biology*, second edition. Blackwell Science, Cambridge, UK
2. Hunter, M. L. 1999. *Maintaining biodiversity in forest ecosystems*. Cambridge University Press. ISBN 0-521-63104-1.
3. Sutherlans, W, J. 2000. *The conservation handbook: Research, Management and Policy*. Blackwell Science, Oxford (Chapters: 3,10,14)
4. MacKinnon et al. 1996. *Managing Protected Areas in the Tropics*. Natraj Publishers, Dehradun.
5. Herman H. Shugart. *Terrestrial Ecosystems in Changing Environments*. Cambridge University Press.
6. Miller, R. W. 1997. *Urban Forestry: Planning and Managing Urban Greenspaces*. Second Edition. Prentice Hall, Englewood Cliffs, New Jersey
7. Monica Turner, R H Gardner. *Landscape Ecology in Theory and Practice: Pattern and Process*. Springer Verlag
8. Guy R. McPherson, Stephen DeStefano. *Applied ecology and natural resource management*. Cambridge (Chapter 5)
9. Judith H. Myers. *Ecology and Control of Introduced Plants*. Cambridge University Press (Pages: 1-17, 224-247 )

Course No.:	PPM 113
Course title:	<b>Operations Research and Management</b>
Number of credits:	3-1-0
Number of lectures-tutorial practicals:	42-14-0
Course coordinator:	Dr Ram Karan Singh

### Course outline

The operation research and management course is a 4-credit course specially designed for MBA Infrastructure students. The course as a whole deals with two parts. The first part is designed to give the idea on operation research topics, problem formulation for real life situations, solutions and interpretations, latest software's application and real life problem solutions are the inbuilt features of each topics. The second part deals with introduction to project management and basics tools used in its analysis, real life project management problems will be discussed to demonstrate the applications of these tools along with the latest software and models used to solve such problems.

### Evaluation procedure

- Tutorials/assignment                      20%
- 2 minor tests                                      30%
- 1 major test (end semester)              50%

### Details of course content and allotted time

Sr. No.	Topic	Allotted time (hours)		
		Lectures	Tutorials	Practicals
	<b>Part-I</b>	<b>25</b>	<b>10</b>	
1.	Introduction to Operation Research and Linear Programming Problems	2	--	
2.	Linear Programming Problem Formulations in real life situations	4	3	
3.	LP graphical solutions, sensitivity analysis and Computer solutions	5	2	
4.	Simplex algorithms and its applications in LP solutions	5	3	
5.	Duality and sensitivity analysis, economic interpretation, sensitivity analysis, applications and interpretations, Introduction to Quadratic Programming	5	1	
6.	Transportation and assignment problems	3	1	
	<b>Part-II</b>	<b>15</b>	<b>5</b>	
1.	Introduction to project management	2	1	
2.	Network definition, PERT and CPM model and analysis	5	2	
3.	Grant Chart, time and cost models, project management software	3	1	
4.	Probabilistic and uncertainty analysis	3	1	
5.	Resource constraints and milestone management	2	-	
	<b>Total</b>	<b>42</b>	<b>14</b>	

### **Suggested readings**

1. H.A.Taha, "Operation Research: An Introduction", Fifth Indian Reprint 2005, Pearson Prentice Hall, New Delhi.
2. Bazara, M., et.al.; "Linear Programming and Network Flow", 2nd ed., Wiley, New York, 1990.
3. Dantzig, G, 'Linear Programming and Extensions, Princeton University Press, Princeton, NJ, 1963.

Course No.:	PPM 181
Course title:	<b>Management functions and Organisational Behaviour</b>
Number of credits:	4-0-0
Number of lectures-tutorial practicals:	43-13-0
Course coordinator:	Ms Avantika Singh

### **Course outline**

The course provides inputs to the participants on management functions in organisations, individual and group behaviour, and organisational structure and dynamics. The objective of the course is to enable participants to understand concepts and develop skills in management functions and organisational behaviour, apply strategies in an organisational context to become effective managers, and successfully manage human relations to achieve organisational objectives. The course consists of three modules. Module I focuses on management functions, module II on micro organisational behaviour and module III on macro organisational behaviour.

The prime responsibility of managers is to get things done through people in an organisational set-up. Therefore it is important for would-be managers to become familiar with the essential functions of management. Module I focuses on the basic principles and concepts of management functions in organisations, and their linkage with effectiveness and efficiency.

In the course, behavioural processes in organisations are dealt with at three levels – individual, group and organisational level. In addition to text, teaching material and cases, module II consists of a number of research-based tools to enable participants build skills through self-assessment exercises. Understanding the organisational context is important for understanding employee behaviour. Module III on macro organisational behaviour takes a management-oriented exploration of organizational theory and the intricacies of organizational structure, design and applications. The modules draw upon key insights from various disciplines such as psychology, sociology, social psychology, political science, organisation theory and management. The approach is practice-oriented which will enable participants to acquire certain skills and apply them in real-world managerial context.

### **Evaluation procedure**

(Percentage of marks to be allotted to each type of test/ activity)

- Surprise quizzes 30%
- End term examination 40%
- Assignment and presentation 30%

**Details of course contents and allotted time**

Sr. No.	Topic	Allotted time (hours)	
		Lecture	Tutorial
1.	Introduction to the Course Participants' Expectations	1	1
<b>Module I: Management Functions</b>			
2.	<b>Sub-module 1: Introduction to Management Thought</b> i. Evolution of management thought <ul style="list-style-type: none"> <li>• Taylor's scientific management</li> <li>• Fayol's 14 principles</li> <li>• Hawthorne experiments</li> </ul> ii. Management thinkers	1  1	2
3.	<b>Sub-module 2: Management Environment and Decision Making</b> i. Management environment ii. Decision making in organisations	1 1	2
4.	<b>Sub-module 2: Management Functions</b> i. Planning ii. Organising iii. Staffing iv. Directing v. Coordinating vi. Controlling	1 1 1 1 1 1	6
5.	<b>Sub-module 3: Management and Society</b> i. Ethics in management ii. Corporate social responsibility	1 1	2
<b>Module II: Micro Organisational Behaviour</b>			
6.	<b>Sub-module 1: Introduction to Micro Organisational Behaviour</b>	1	1
7.	<b>Sub-module 2: Individual Behaviour</b> 1. Perceptual processes 2. Learning processes 3. Values, attitudes, job satisfaction 4. Personality 5. Emotional quotient 6. Motivation	1 1 1 1 1 2	7

Sr. No.	Topic	Allotted time (hours)	
		Lecture	Tutorial
7.	<b>Sub-module 3: Group Behaviour</b>		
	1. Group dynamics	1	
	2. Team-building	1	
	3. Communication in organisations	1	
	4. Leadership and Trust	1	
	5. Power and politics in organisations	1	
	6. Conflict management	2	
	7. Negotiation	1	
		<b>8</b>	
8.	<b>Sub-module 4: Organisational Dynamics</b>		
	i. Management of change	1	
	ii. Organisation Development (OD)	1	
	iii. Stress management	1	
		<b>3</b>	
<b>Module III: Macro Organisational Behaviour</b>			
9.	<b>Sub-module 1: Introduction to Macro Organisational Behaviour</b>		
	i. Organisation theory	1	
	ii. Dimensions of organisational structure	1	
		<b>2</b>	
10.	<b>Sub-module 2: Determinants of Organisational Structure</b>		
	i. Strategy	1	
	ii. Size	1	
	iii. Technology	1	
	iv. Environment	1	
	v. Power	1	
		<b>5</b>	
11.	<b>Sub-module 3: Organisational Design</b>		
	i. Organisational design options	1	
	ii. Choosing the right structural form	1	
		<b>2</b>	
12.	<b>Sub-module 4: Applications</b>		
	i. Organisational culture	1	
	ii. Organisational evolution and organisational learning	1	
		<b>2</b>	
	<b>Presentations by participants</b>		<b>13</b>
	<b>Total</b>	<b>43</b>	<b>13</b>

### Text books

#### Module I:

1. Koontz, Harold and Heinz Weihrich, 2004, *Essentials of Management*, 6<sup>th</sup> ed., New Delhi: Tata McGraw-Hill.

#### Module II:

2. Robbins, Stephen P., *Organizational Behavior*, 11<sup>th</sup> ed., New Delhi: Prentice Hall.

Module III:

3. Robbins, Stephen P., *Organization Theory: Structure, Design And Applications*, 3<sup>rd</sup> ed., New Delhi: Prentice Hall.

**Suggested readings**

1. Conroy, Vibert, *Theories of Macro Organizational Behavior: A Handbook of Ideas and Explanations*, New Delhi: Prentice Hall
2. Daft, Richard L., 8<sup>th</sup> ed., *Organization Theory and Design*. Thomson.
3. Hall, Richard, 2005, *Organizations: Structures, Processes and Outcomes*. New Delhi: Prentice Hall.
4. Hellriegel, D., J.W. Slocum and Woodman, 2001, *Organizational Behavior*.
5. Hersey, Paul, Kenneth H. Blanchard, and Dewey E. Johnson, *Management Of Organizational Behavior Leading Human Resources*, 8<sup>th</sup> ed., New Delhi: Prentice Hall.
6. Khandwalla, Pradip N., 1992, *Organisational Designs for Excellence*, New Delhi Tata McGraw-Hill.
7. Koontz, Harold, *Principles of Management (ASCENT Series)*, New Delhi: Tata McGraw-Hill.
8. Luthans, Fred, *Organizational Behavior*, McGraw Hill.
9. Newstrom, John W, and Keith Davis, *Organizational Behavior – Human Behavior at Work*, New Delhi: Tata McGraw-Hill.
10. Pareek, Udai, T.V. Rao and D.M. Pestonjee, 1981, *Behavioural Processes in Organisations*, New Delhi: Oxford and IBH Publishing.
11. Scott, W. Richard 2003, *Organizations: Rational, Natural, and Open Systems*, 5<sup>th</sup> ed. Prentice Hall.
12. Sekaran, Uma, 2004, *Organisational Behaviour: Text and Cases*, 2<sup>nd</sup> ed., New Delhi: Tata McGraw Hill.
13. Senge, Peter M., 1998, *The Fifth Discipline: The Art and Practice of Learning Organization*, London: Random House.
14. Shukla, Madhukar, 1996, *Understanding Organisations*, New Delhi: Prentice Hall of India.
15. Thornhill, Adrian, Mike Millmore, Mark Saunders and Phil Lewis, 2000, *Managing Change*, New Delhi: Pearson Education.



Course No.:	PPM 151
Course title:	<b>Infrastructure Policies, Reforms, and Law</b>
Number of credits:	4 (3-1-0)
Number of lectures-tutorial practicals:	42-14-0
Course coordinator:	Mr M P Ram Mohan

### Course outline

This course will cover important infrastructure sectors and provide an overview of the current status of the different sectors, the reforms, including regulatory reforms, initiated to attract investment, to improve efficiencies, to rationalise tariff and to enhance consumer welfare, and the issues that remain unresolved. The course will also provide an overview of the sector specific legislation, the Constitutional and general legal context in which sector laws operate and of the regulatory law, where it exists.

The course will comprise of both background teaching on the range of policy and regulatory approaches and case studies. The course also provides a comparative picture of infrastructure reforms in South Asian countries and in some select countries in Latin America and U.K.

### Evaluation procedure

- Class discussions 5%
- Tutorials/assignments 15%
- 2 Minor tests 30% (15% each)
- 1 Major test (end semester) 50%

### Details of course content and allotted time

Sr. No.	Topics	Allotted time (Hours)	
		Lecture	Tutorials
<b>1.</b>	<b>Legal and Policy Aspects</b>	<b>4</b>	
	<b>Constitutional aspects</b> Constitutional law-allocation of jurisdiction over different infrastructure sectors between the Centre and State - law making powers	1	
	<b>Policy Formulation</b> Role of Centre and State in policy formulation- Central funding of infrastructure projects- Central oversight and interface	1	
	<b>Private Participation</b> Investment requirements-non ideological factors leading to commercialisation and privatisation of infrastructure- from socialism to market driven economy-legal framework for private sector participation- modes of Public Private Partnership (PPP)	1	
		1	

Sr. No.	Topics	Allotted time (Hours)	
		Lecture	Tutorials
	<b>Dispute Resolution</b> Settlements through the courts and Alternate Dispute Resolution (ADR)- the judiciary-Alternative Dispute Resolution- the Indian Arbitration and Conciliation Act 1996-Cases		
<b>2.</b>	<b>General legal context of infrastructure business</b>	<b>8</b>	<b>2</b>
	<b>Overview</b> Contract law, property Law and Company Law	4	
	<b>Competition Act 2002</b> MRTP Act- history - Competition Act 2002- prohibited agreements (cartels - abuse of dominance- mergers and acquisition- competition in a network industry - Competition Commission	2	1
	<b>Environmental Aspects</b> General Framework on environmental regulation and guidelines- judicial activism in environmental regulation and projects- Environmental Impact Assessment-Case Studies	2	1
<b>3</b>	<b>Independent regulation: New Mechanism of Governance in infrastructure</b>	<b>6</b>	<b>2</b>
	Theories of regulation-genesis of Independent regulation-evolution of regulation in different jurisdictions- Design and structure of regulators-scope and functions-regulatory process-and regulatory autonomy and accountability-regulatory predictability and certainty	<b>3</b>	<b>1</b>
	Comparative Regulatory Law- Developments in South Asia- EU and US	<b>3</b>	<b>1</b>
<b>4</b>	<b>Infrastructure Sectoral polices, reforms, and laws</b>	<b>20</b>	<b>8</b>
	<b>Power Sector/Electricity</b> Introduction-evolution of the power sector reforms, polices-National Electricity policy- new legal framework- the state electricity boards- licensing framework- Provisions Relating to and working of Electricity Regulatory Commissions-their structure, role and functions	4	2
	<b>Telecommunications</b> The national telecom policies-the legal framework- regulatory agencies-functioning, power and functions of TRAI and TDSAT	4	2
		3	1

Sr. No.	Topics	Allotted time (Hours)	
		Lecture	Tutorials
	<p><b>Oil, Petroleum and Natural Gas</b> Reforms, policies and legal framework -New Exploration Licensing Policy (NELP)- production sharing contracts- the new Petroleum Regulatory and Natural Gas Board Act – the emerging regulatory reforms</p> <p><b>Water</b> Water policy and General Legal framework and reforms- Water rights- state jurisdiction- new regulatory reforms in water sector- Case studies</p> <p><b>Transport</b> Law, policy and reforms relating to Airports-Railways- Road –Port/TAMP and an overview of coastal shipping and Inland Water Transport policy</p>	3  6	2  1
<b>5</b>	<b>Critique of Regulatory law and processes</b>	<b>4</b>	<b>3</b>
	<p>Relationship with the executive-legislature and judiciary-Relationship between regulators- potential for conflict of jurisdiction - cooperation amongst agencies – International best practices-Multi sector regulator</p> <p>Ensuring universal service obligation-targeting subsidies-reducing losses-rationalising tariff</p> <p>Competition in infrastructure-role of the sector regulator in introducing competition in net work industries – sector regulator and competition authority</p>	2  1  1	1  1  1

### Suggested readings

1. I.P Massey Administrative Law
2. D D Basu, The Constitutional Law of India
3. Baldwin, R. and C. McCrudden. Regulation and Public Law. London: Weidenfeld & Nicolson, 1987
4. N.D. Basu on Law of Arbitration and Conciliation, Thoroughly Revised by P.K. Majumdar. Reprint. New Delhi, Orient Publishing, 2003
5. Piyush Joshi, Law Relating to Infrastructure Projects, 2<sup>nd</sup> Butterworths (2003)

6. Ramachandran, V.G. -- Law of Contract (Vols i, ii, iii.), 3<sup>rd</sup> Edition, 2003
7. Ramaswamy R. Iyer, Water: Perspectives, Issues, Concerns, Sage Publications 2003
8. Rosencranz and Divan, Environmental Law and Policy, Oxford University Press 2001
9. India Infrastructure Reports
10. S k Sarkar, Leena Srivastava (ed) Reforms in the Infrastructure Sectors: Next Steps, TERI 2002
11. SK Sarkar, Leena Srivastava (ed) Transition to a liberalized environment: experiences and issues in regulation, Teri 1999
12. S Sundar & SK Sarkar Framework for Infrastructure Regulation TERI 2000
13. Regulatory law in practise: Compendious of orders of electricity and telecom sectors, TERI 2005
14. Sidney Shapiro & Joseph Tomain Regulatory law and policy: Cases and Materials LexisNexis, 2003

Course No.:	NRS 121
Course title:	<b>Ecology</b>
Number of credits:	4
No. of lectures-tutorial-practical:	35-7-28
Course coordinator:	Dr Neeraj Khera

**Course outline:**

The course starts with the basic concepts of Ecology, populations, ecosystem-its structure, composition, function, productivity and succession, and different types of ecosystems, to help students in understanding the basics. As the next step, application of ecological principles to various areas viz. ecological restoration, exotic species, urban areas, and climate change will be covered to give the students a more practical and analytical approach towards problem solving.

**Evaluation procedure** (Percentage of marks to be allotted to each type of test):

- 2 minor tests	: 10+10
- Practicals	: 25
- Assignments	: 15
- 1 major test	: 40

**Details of course content & allotted time**

No	Topic	L	T	P*
<b>Basic concepts of Ecology</b>				
1	Basic Principles and concepts pertaining to individual, populations and community: <ul style="list-style-type: none"> <li>• Introduction, concept of species, populations, communities and ecosystem</li> <li>• Ecotype, ecocline, acclimation, ecological amplitude, ecological equivalents, niche</li> <li>• The law of tolerance, law of limiting factors</li> <li>• Biodiversity</li> </ul>			4
2	An introduction to abiotic and biotic factors, Fire and grazing			1
3.	<b>Regeneration Ecology:</b> Flowering, fruiting, seed germination, seedling establishment,			1
	Environmental factors affecting populations, Population growth, density, mortality, life history traits			1
4	Carrying capacity, Ecological footprints, Ecological adaptations			2
5	Methods of analysing communities: Phytosociological methods, ordination techniques, statistical methods for ecological data analysis			3 6 <sup>@</sup>
6	Ecological Succession: Types of succession, Process of succession, disturbances and succession, successional communities			1
<b>Ecosystems</b>				
7	Ecosystems			2

**Readings:**

1. E. P. Odum. **Fundamentals of Ecology**. Natraj Publishers, Dehradun.
2. Barnes, Zak, Denton and Spurr. **Forest Ecology** 1988, 4th edition. John Wiley and Sons, New York

**Other suggested readings:**

1. Champion and Seth. **Forest Types of India**. Government of India press, New Delhi.
2. D.N. Tewari. **Desert Ecosystem**. 1994, International Book distributors, DehraDun
3. Herman H. Shugart. **Terrestrial Ecosystems in Changing Environments**. Cambridge University Press.
4. J. R. Packham and A. J. Willis. **Ecology of dune, salt marsh and shingle**. Chapman
5. Scheffer, M. **Ecology of shallow lakes**. Chapman and Hall.
6. Monica Turner, R H Gardner. **Landscape Ecology in Theory and Practice: Pattern and Process**. Springer Verlag
7. Guy R. McPherson, Stephen DeStefano. **Applied ecology and natural resource management**. Cambridge
8. P. A. Thomas. **Trees: their natural history**. Cambridge University Press
9. Judith H. Myers. **Ecology and Control of Introduced Plants**. Cambridge University Press
10. Dawn Bazely. **Tropical ecosystems: structure, diversity and human welfare**. Oxford & IBH
11. Mark B. Bush. **Ecology of a changing planet** (2<sup>nd</sup> ed.) .Prentice hall.

**Papers:**

1. Susan k. Wiser, Robert B. Allen, Kevin H. Platt (1997). Mountain beech forest succession after a fire at mount thomas forest, canterbury, new zealand. *New zealand journal of botany*, 1997, vol. 35: 505-515
2. Vesa Yli-Pelkonen and Jari Niemela. (2005) Linking ecological and social systems in cities: urban planning in Finland as a case. *Biodiversity and Conservation*. 14: 1947–1967

Course No.:	BBT 151
Course title:	<b>Environmental Biotechnology</b>
Number of credits:	3 (2.25-0-0.75)
No. of lectures-tutorial-practical:	32-0-20
Course coordinator:	Dr Anandita Singh

### Course outline

The present course seeks to bring about a conceptual understanding on key issues related to Environmental Biotechnology. The major focus will be on the impact of microbial and agriculture biotechnology on environment. The course has been structured as two distinct modules. The first module aims to create awareness about the role that microbial biotechnology promises to play in relation to bioremediation. The relevant topics include introduction to basic microbiology, principles of microbial genetics and molecular biology. The course will provide an in-depth knowledge on aspects of biotransformation and biodegradation of specific pollutants, removal of pollutants from the environments and bioremediation of polluted lands or water bodies. The second module is intended to provide an exposure to diverse biotechnological practices for sustainable agriculture. An introduction to plant genetic transformation will be provided to highlight both the positive and negative impact of transgenic technology on environment. The students will be sensitized to the environmental biosafety issues related to GMOs, the regulatory issues including the regulatory framework of India. Socio-economic and ethical aspects of releasing GMOs in the market will also be covered. The course will also sensitize the students to how biotechnology and various molecular biology techniques address the issues pertaining to management of germplasm resources for conservation. The aim of the course will be both to understand the basic concepts in environmental biotechnology as well as application of biotechnology for addressing environmental problems.

### Evaluation procedure

- Class discussion and Practicals : 15 %
- Tutorials/assignment : 15 %
- 2 minor tests : 30% (15% each)
- 1 major test (end semester) : 40%

### Details of course content & allotted time

S.No	Topic	Allotted time (hours)		
		Lecture	Tutorials	Practicals
Module 1	<b>Microbiology, Biotransformation and Biodegradation</b>			
	Introduction to microbiology and its applications, Prokaryotic cell structure and function, Microbial genetics: Recombinomics, genes and their organization, genetic code, gene expression and regulation.	4		

S.No	Topic	Allotted time (hours)		
		Lecture	Tutorials	Practicals
	Socio-economic and ethical issues concerning GMOs in agriculture and industry: IPRs and best business practices in Agbiotech research, Case studies	3		
	Biotechnology for germplasm conservation and management of PGRs: PGRs as a source of novel genetic variation, introduction to molecular markers, DNA fingerprinting for assessment of genetic diversity and germplasm management	4		
	Integrated Plant Nutrient Management (inorganic, organic fertilizers, bio fertilizers and vermi-composts for sustained soil health and crop productivity)	2		
	Integrated Pest Management: Concepts, Definitions, Approaches and Relevance	2		
	<b>Practical:</b>			
	Introduction to basic plant molecular biology techniques: PCR technique for GM detection, ISSR fingerprints, Agarose gel electrophoresis and visualization on ethidium bromide staining			6
	Field trip to NBPGR: Principles of <i>in-situ</i> and <i>ex-situ</i> conservation and management of plant genetic resources			0
	Total	<b>32</b>		<b>20</b>