DEPARTMENT OF TOWN & COUNTRY PLANNING

UNIVERSITY OF MORATUWA, SRI LANKA

The Department of Town & Country Planning was established in October, 1973 as a fully-fledged Department in the Faculty of Engineering of the Katubedda Campus. With the establishment of University of Moratuwa in 1978, the Department was placed within the Faculty of Architecture. Since then, it has been one of the four Departments in the Faculty of Architecture. The Department of Town & Country Planning hails the privilege of being the only such Department in an academic institution in Sri Lanka that offers degree programmes in Spatial Planning and conduct research in planning related areas.

From the date of its commencement, the Department has been conducting Post Graduate courses in Town & Country Planning. The first course leading to Master of Science in Town &Country Planning commenced in July 1975. So far, more than 200 persons have obtained the qualification in Master of Science in Town & Country Planning. In addition to that, the Department also offered Post Graduate Diploma in Urban Development since 1979 in collaboration with the Urban Development Authority of Sri Lanka, qualifying more than 150 persons. Two more courses leading to Master of Science Degree in Land use Planning & Resource Management and, Post Graduate Diploma in Housing Development were also offered once each. Also, having felt the present need of Sri Lanka to have more numbers of qualified planners, the Department has extended to conduct an Undergraduate Degree Programme in the Field of Town & Country Planning. As a result the pioneering programme four Year, Honors Degree Course in Bachelor of Science in Town & Country Planning, commenced in 2003. Since then, the course has been enrolling average 50 candidates for each intake, on the performance of GCE (Advanced Level) results. In 2013, the Department introduced Master of Spatial Planning, Management & Design discontinuing the Master of Science in Town & Country Planning. In order to facilitate the industry demands, last year the Department proudly introduced a new Masters Degree programme called Master of Science in Environmental Planning.

So far all courses and other academic matters within the Department are conducted in English Medium. Motivating 'Integrated Spatial Planning', the Department always encourages the multidisciplinary approach in Planning and therefore, all of its courses comprise of subject modules form a vast range of fields, while the members of the academic staff are form a variety of disciplines. In order to encourage and facilitate research interests in both academic members and the students, and also to provide opportunities to external researchers, the Department has established a Research Unit, where a number of research activities are being carried out.

MESSAGE FROM HEAD OF THE DEPARTMENT

The Department of Town & Country Planning of the University of Moratuwa warmly welcomes you. We are pleased that you have chosen Environmental Planning and wish you will continue your career in this field. Today, Sustainability and Environmental Conservation are integral parts of the development process and any breakdown in the environmental stability would have serious repercussions on the long-term development in the country. The development process initiated by Sri Lanka, in the past few decades contributed towards degradation of natural resources endowment, largely due to inadequate applications of environmental planning tools. Therefore, environmental education has a vital role in building capacity in transitioning to a society that is knowledgeable of the environment and its associated problems, aware of the solutions to these problems and motivated to encounter them.

In this backdrop, the Department of Town & Country Planning offers Environmental Planning Program to produce Environmental Planners who will possess the capacity to face the challenges of achieving environmental sustainability and human settlement planning in urban and rural areas; especially with regard to land, environment, population, society, culture, and the economy. This program is a multi-disciplinary, research-led program that provides theoretical knowledge, practical and industry experience gained across studios, workshops, and field visits to enhance pathway into a professional carrier in Environmental Planning and Urban Planning.

All programmes in the Department of Town & Country Planning are geared to enrich and equip upcoming candidates to face challenges in resource planning and environmental management. Therefore, we believe, by selecting a career in this area, you have pledged to contribute towards building a great nation that will have a vivid and pleasant environment to live in and sustain its resources with a great respect to the motherland. It is your duty to abide by that, and acquire knowledge and equip yourself with skills required for this task by making maximum use of the opportunities and resources made available to you throughout the course of study. The Department will provide you with the maximum support to the best of its capacity. I wish you a pleasant and cheerful time throughout your stay at the University.

Dr.Rangajeewa Rathnayake
Head/Department Town & Country Planning

DEPARTMENT STAFF OF THE DEPARTMENT

The full-time multi-disciplinary academic staff members of the department conduct both undergraduate & post graduate courses. The specialist visiting staff members from other universities, research institutions and state organizations are invited time to time for the lectures of specialization.

ACADEMIC STAFF

Head of the Department

Dr. Rangajeewa Rathnayake

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MSc(Town & Country Planning) SL
PhD (AUS)
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Professor Emeritus

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Professor

Professor PKS Mahanama

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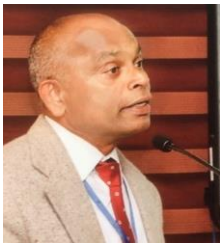
Consultant (On Contract)

Dr. P Wattage



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Instructor

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Instructor

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Instructor

Mr. Aveendra Madusanka

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ACADEMIC SUPPORTIVE STAFF OF THE DEPARTMENT

Officer	Position	Contact	
Mr. Pradeep Kumara **BLE** (Colombo) **Masters** (Information Technology), UCSC	Technical Officer	+94 11 2650301 (ext 7311)	
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Mr. Nuwan Priyashantha	Technical Officer	+94 11 2650921	
Mr. A D D S Gunawardena **B.Sc.** (USJP)	Computer Application Assistant	+94 11 2650921	
Ms. D.M.U.P. Gunasekara	Computer Application Assistant	+94 11 2650921	

Mr. A K A Perera	Management Assistant (Grade III)	+94 11 2650921	
Mr. Shirantha Fernando	Lab. Attendant	+94 11 2650921	
Mr. K D H Ishara	Lab. Attendant	+94 11 2650921	
Mr. Eranda Kumanayake	Office Assistant (Grade III)	+94 11 2650921	
Mr. U M S Dharmawardana	Work Aid (Grade III)	+94 11 2650921	

Eligibility and Performance Criteria

(Formulated under By – Law No. 49 of 2014)

1. Title of the Degree : ***Master of Science in Environmental Planning***

1.1 Title of Award : ***PG Diploma / Master of Science in Environmental Planning***

1.2 Programme Mode : ***Part-time***

2. Extended Eligibility Requirements

The minimum eligibility requirements to follow the prescribed programme leading to the Masters Degree Programme, is one of the following qualifications:

2.1. An Honours Bachelor's degree of the University of Moratuwa, in a relevant field or any other Bachelor's degree from a recognized University in a relevant field of at least four (04) years duration, equivalent to an Honours Bachelor's degree of the University of Moratuwa as judged by the Faculty and approved by the Senate.

2.2. Any other Bachelor's Degree from a recognized University in a relevant field, as judged by the Faculty and approved by the Senate and a minimum of one (01) year post-qualifying relevant experience as judged by the Faculty and approved by the Senate.

2.3. Any recognized category of membership of a recognized Professional Institute in a relevant field obtained through an academic route as judged by the relevant Faculty and approved by the Senate and a minimum of **one (01) year** post-qualifying relevant experience as judged by the Faculty and approved by the Senate.

3. Participation in the Academic Programme:

3.1. 80% attendance is usually required in lectures and project work, as specified under clause 4.1.1. (a) of the By-Law.

3.2. Participation is compulsory in assignments, as specified under clause 4.1.1. (b) of the By-Law.

3.3. Undertaking research in a specific area is compulsory, as specified in clause 4.1.1(c) of the By-Law.

3.4. The Master's degree programme is expected to be completed in the normal duration, but may go on till the permitted duration of study without the need of an extension as specified under section 5 of the By-Law.

3.5. It is the responsibility of the student to obtain an extension to the permitted duration, though the Head of Department. Such requests to extend the duration will be taken considering the progress of the student at the time of request.

3.6. Prior approval must be obtained in writing from the University, with the necessary documentation, for leave of absence (as defined by the Senate). Only such leave will be considered for any official purpose, such as considering a subsequent attempt as a first attempt.

3.7. Only approval leave obtained on compassionate and medical grounds will normally be considered by the Senate in extending the maximum duration of study.

4 Evaluation and Grading

4.1. The performance of each student in each module will be evaluated by Continuous Assessment (CA) and end-of-semester Written Examination (WE).

4.2. In modules that evaluate the performance of the students by both CA and WE, the CA component normally carries a weightage of not less than 20% and not more than 40% of the total marks.

4.3. The continuous assessment of a student may be based on a specified combination of assignments including coursework, project work, design project work, laboratory work, tutorials, field trips, field camps, quizzes, presentations, term papers and participation in the course activities.

4.4. Each Candidate should obtain at least 40% from each of CA and WE components to obtain a pass grade a module.

4.5. Grade C+ or above is required to earn credit for and pass a module.

4.6. A student failing to reach 40% in one of CA or WE receives an incomplete grade I, and is required to repeat only the failed component/s as a repeat candidate to complete the module.

4.7. A student obtaining at least 40% in each of CA and WE components but fail to pass a module receives an incomplete grade I and is required to repeat either of the component/s as a repeat candidate to complete the module.

4.8. A student failing to reach 40% in both CA and WE receives an F grade and must repeat both components in order to upgrade the result.

4.9. The grades F or I can be improved up to a C+ grade and considered for calculating the GPA. Students who wish to upgrade need to complete their examinations and obtain the upgraded grade before the relevant final board of examiners after the graduation requirements are met.

4.10. The grade achieved for each module will be entered on the student's permanent record in the registry. The grade at the first attempt or the improved grade earned at a subsequent attempt, if any, will be recorded.

4.11. Except when an Academic Concession has been granted, the highest grade obtainable at a repeat attempt is the grade "C+" and it will be used for calculating Grade Point Average (GPA).

4.12. Grade N signifies an Academic Concession granted, in the event a student is unable to sit for the WE due to illness or other compelling reason accepted by the Senate. In such instances the student shall make an appeal, with supporting documents, to the Director Postgraduate Studies for an Academic concession with the recommendation of Head of the Department.

4.13. Letter grades based on the Grade point system and corresponding description, as illustrated in the Table 4.1 will be used to express the performance at each module. Benchmark percentages are given for the guidance of the examiner and may be changed upwards or downwards by the moderator in consultation with the examiner.

Table 4.1 Grading System

Benchmark Percentage	Grade	Grade Point	Description
85 and above	A+	4.2	
75 to 84	A	4.0	Excellent
70 to 74	A-	3.7	
65 to 69	B+	3.3	
60 to 64	B	3.0	Good
55 to 59	B-	2.7	
50 to 54	C+	2.3	Pass
	I	0.0	Incomplete
	F	0.0	Fail
	N	---	Academic Concession

4.14. The Grade Point Average (GPA) is calculated based on the summation of Grade Point earned for the all modules registered for credit (except those awarded with academic concession or withdrawn) weighted according to number of credits, as follows,

$$GPA = \frac{\sum n_i \times g_i}{\sum n_i}$$

where n_i is the number of credits for the i^{th} module and g_i is the grade points earned for that module.

4.15. The GPA is rounded to the nearest second decimal place and reported on the transcript.

5 Academic Concession

5.1. A student who has missed a WE or any other course requirements because of illness or other compelling reason may appeal with supporting documents to the Director Postgraduate Studies through the Head of Department for an Academic Concession. In case of an examination, the student should submit an application with supporting documents within two weeks from the date of an examination. In instances where a student misses any other course activity such as CA, the student should submit the application with supporting documents before the last date of academic activities of the relevant semester or term.

5.2. An Academic Concession may be granted for medical reasons and other exceptional circumstances subject to the approval by the Senate of the University.

6 Graduation Requirements

6.1. A candidate is deemed to have passed the Master's Degree if candidate has successfully completed at least 60 credits fulfilling the requirements of section 4.1 of By-Law.

6.2. If the student is unsuccessful in any of the parts of 6.1 the student may be re-examined.

6.3. Classes will not be awarded for the Degree of Master of Science in Environmental Planning

7 Effective date of award

The effective date of the award of the Postgraduate Degree Certificate shall be the first day of day of the month following the satisfactory completion, by the candidate, or the certificate requirements as specified in the Eligibility and Performance Criteria**.**

Degree in Postgraduate Diploma / Master of Environmental Planning
Department of Town & Country Planning
University of Moratuwa, Sri Lanka

Sustainability and Environmental Conservation are integral parts of the development process and any breakdown in the environmental stability would have serious repercussions on the long-term development in the country. The development process initiated by Sri Lanka, in the past few decades have triggered the degradation of natural resources endowment, largely due to inadequate account of environmental assessment planning and decision-making tools.

Therefore, environmental education has a vital role in the building capacity in transitioning to a society that is knowledgeable of the environment and its associated problems, aware of the solutions to these problems and motivated to encounter them. In order to address this need, the Ministry of Mahaweli Development and Environment has proposed Faculty of Architecture, University of Moratuwa (UoM) to develop a course on Environmental Planning in collaboration with the Ministry.

As a result, the Department of Town & Country Planning is planning to commence a MSc Degree Program in Environmental Planning. The objective of this program is to produce Environmental Planners who will possess the capacity to face the challenges of achieving environment sustainability and human settlement planning in urban and rural areas; especially with regard to land, environment, population, society, culture, and the economy.

The MSc Degree program provides candidates a path to advance their professional qualifications with knowledge, practice and research skills up to SLQF Level 10 in Environmental Planning. In addition to PG Diploma level, Masters students should earned by completing a research project with learning hours totalling to a 15 credits, two compulsory modules of research methods & statistics for Environmental Planners and water resources planning & management with learning hours totalling to a 04 credits, and one elective module selected from landscape planning and international studies with learning hours totalling to a 02 credits. Each student will be individually supervised by supervisor holding a Master Degree or higher qualification and students should submit a dissertation which will be evaluated and accepted based on their original academic contribution to Environmental Planning discipline.

The main objectives of this programme is to produce Environmental Planner who will possess the capacity to face the challenges of environment sustainability and human settlement planning in urban and rural areas; especially with regard to land, environment, population growth, culture, and the economy. Specific objective of the MSc Degree program is to provide candidates a path to advance their professional qualifications with knowledge, practice and research skills in Environmental Planning.

C U R R I C U L U M

For the Award of the Master of Spatial Planning, Management & Design

CURRICULUM & SCHEME OF EVALUATION

1. Curriculum of Post Graduate Diploma in Environmental Planning

Code	Unit	Credits GPA	Evaluation	
			WE (%)	CA (%)
Semester I				
Core Modules (Compulsory)				
TP5101	Environmental Assessment	2	70 - 60	30 - 40
TP5102	Environmental Economics	2	70 - 60	30 - 40
TP5103	Environmental Planning Techniques	2		100
TP5104	Governance, Planning and Environmental Law	2	70 - 60	30 - 40
TP5105	Planning Theory and Strategic Intervention	2	70 - 60	30 - 40
TP5106	Environmental Planning Studio I (Regional Scale)	6		100
Electives (Minimum 06 Credits)				
TP5107	Planning for climate change, risk and uncertainty	2	70 - 60	30 - 40
TP5108	Cities, Regions and Economic Development	2	70 - 60	30 - 40
Semester II				
Core Modules (Compulsory)				
TP5201	Infrastructure Planning	2	70 - 60	30 - 40
TP5202	Environmental Management Systems	2		100
TP5203	Eco Sensitive Planning	2		100
TP5204	Project Financing & Management	2	70 - 60	30 - 40

Code	Unit	Credits GPA	Evaluation	
			WE (%)	CA (%)
TP5205	Environmental Planning Studio II (Local Scale)	6		100
TP5206	Project Study	6		100

Electives (Minimum 06 Credits)				
TP5207	Advanced GIS & RS for Environmental Planners	2		100
TP5208	Demography, Society and Space	2	70 - 60	30 - 40
TP5209	Heritage in Planning	2		100

2. Curriculum of Master of Science in Environmental Planning

Code	Unit	Credits GPA	Evaluation	
			WE (%)	CA (%)
Semester I				
Core Modules (Compulsory)				
TP5101	Environmental Assessment	2	70 - 60	30 - 40
TP5102	Environmental Economics	2	70 - 60	30 - 40
TP5103	Environmental Planning Techniques	2		100
TP5104	Governance, Planning and Environmental Law	2	70 - 60	30 - 40
TP5105	Planning Theory and Strategic Intervention	2	70 - 60	30 - 40
TP5106	Environmental Planning Studio I (Regional Scale)	6		100
Electives				
TP5107	Planning for climate change, risk and uncertainty	2	70 - 60	30 - 40
TP5108	Cities, Regions and Economic Development	2	70 - 60	30 - 40
Semester II				
Core Modules (Compulsory)				
TP5201	Infrastructure Planning	2	70 - 60	30 - 40
TP5202	Environmental Management Systems	2		100
TP5203	Eco Sensitive Planning	2		100
TP5204	Project Financing & Management	2	70 - 60	30 - 40
TP5205	Environmental Planning Studio II (Local Scale)	6		100
TP5206	Project Study	6		100

Electives				
TP5207	Advanced GIS & RS for Environmental Planners	2		100
TP5208	Demography, Society and Space	2	70 - 60	30 - 40
TP5209	Heritage in Planning	2		100
Semester III				
Core Modules (Compulsory)				
TP6301	Research Methods & Statistics for Environmental Planners	2		100
TP6302	Water Resources Planning & Management	2	70 - 60	30 - 40
Electives				
TP6303	Landscape Planning	2		100
TP6304	International Studies	2		100
Semester IV				
Core Modules (Compulsory)				
TP6401	Dissertation	15		100

SYLLABUS AND LEARNING OUTCOMES

<table>
<tr><td>Code</td><td>TP5101</td><td>Title</td><td colspan="3">Environmental Assessment</td><td>GPA</td></tr>
<tr><td rowspan="2">C/E</td><td rowspan="2">Compulsory</td><td rowspan="2">Hours per Week</td><td>Lectures</td><td>1.5</td><td rowspan="2">Credits</td><td rowspan="2">02</td></tr>
<tr><td>Lab/Studio/Field</td><td>1.5</td></tr>
<tr><td colspan="7">Module Coordinator : Mrs. H.M.M Herath</td></tr>
<tr><td colspan="2">Learning Outcomes</td><td colspan="5">The students should be able to,
1. identify the purpose and role of EA in the decision-making process and understand its technical and social/political limitations
2. analyze ecological systems, their functions and interactions with built & socio-economic environment</td></tr>
<tr><td colspan="2">Outline Syllabus</td><td colspan="5">• Impact assessment& prediction techniques related to,
• Air environment
• Water environment
• Ground water
• Surface water
• Bio-diversity
• Socio-Economic environment
• Cultural environment
• Noise &vibration
• Mathematical modeling
• Spatial & Temporal Analysis
• Environmental Risk Analysis</td></tr>
<tr><td colspan="2">Teaching/learning and Assessment strategies</td><td colspan="5">T/L strategy: Mixture of lectures, site visits, seminars, guided readings and guidance on key sources of reference materials.
Assessment: By continuous assessments and written examination; Continuous assessments include case studies and presentations.
• Written Examination – 60%-70%
• Continuous Assessment – 30%-40%</td></tr>
<tr><td colspan="2">Recommended Readings</td><td colspan="5">Glasson, J., Therivel, R., & Chadwick, A. (2012). Introduction to environmental impact assessment. Milton Park, Abingdon, Oxon: Routledge.

OECD. Publishing. (2006). Applying strategic environmental assessment: good practice guidance for development co- operation. Organization for Economic Co-operation and Development.

Morris, P. and Therivel, R. (eds.) (2009) Methods of Environmental Impact Assessment, 3rd edition, UCL Press, London.</td></tr>
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<table>
<tr><td>Code</td><td>TP5102</td><td>Title</td><td colspan="3">Environmental Economics</td><td>GPA</td></tr>
<tr><td rowspan="2">C/E</td><td rowspan="2">Compulsory</td><td rowspan="2">Hours per Week</td><td>Lectures</td><td>1.5</td><td rowspan="2">Credits</td><td rowspan="2">02</td></tr>
<tr><td>Lab/Studio/Field</td><td>1.5</td></tr>
<tr><td colspan="7">Module Coordinator: Dr. P Wattage</td></tr>
<tr><td colspan="2">Learning Outcomes</td><td colspan="5">The students should be able to,
1. explain the implications of economic theory related to the environment and its activities
2. critically review the conflicts between environment and market forces
3. assess the local, regional and national issues arising due to the market forces and environmental integrity</td></tr>
<tr><td colspan="2">Outline Syllabus</td><td colspan="5">• The role of markets in Natural resource management
• Spatial allocation of natural resources
• Market Failure and Policy Instruments: Standards, Taxes and Subsidies
• Policy Instrument Choice: Heterogeneity, Uncertainty
• Economics of externalities and pollution abatement
• Environmental valuation
• Global Pollutants and International Environmental Agreements
• Application of natural resource management</td></tr>
<tr><td colspan="2">Teaching/learning and Assessment strategies</td><td colspan="5">T/L strategy: Mixture of lectures, site visits, seminars, guided readings and guidance on key sources of reference material.
Assessment: By continuous assessments and written examination; Continuous assessments include case studies and presentations.
• Written Examination – 60%-70%
• Continuous Assessment – 30%-40%</td></tr>
<tr><td colspan="2">Recommended Readings</td><td colspan="5">Aldred, J. The Skeptical Economist. New York & London: Routledge, 2009.

Keohane, N.O. and S. Olmstead. Markets and the Environment, 2nd ed. Island Press, 2016.

Perman, R., Y. Ma, M. Common, D. Maddison, and J. Mcgilvray. Natural Resources and Environmental Economics, 4th Edition. Addison Wesley, 2011.

Sterner, T. (2003): Policy Instruments for Environmental and Natural Resource Management, Resources for the Future. Routledge. ISBN-13: 978-1891853128</td></tr>
</table>

<table>
<tr><td>Code</td><td>TP5103</td><td>Title</td><td colspan="3">Environmental Planning Techniques</td><td>GPA</td></tr>
<tr><td rowspan="2">C/E</td><td rowspan="2">Compulsory</td><td rowspan="2">Hours per Week</td><td>Lectures</td><td></td><td rowspan="2">Credits</td><td rowspan="2">02</td></tr>
<tr><td>Lab/Studio/Field</td><td>06</td></tr>
<tr><td colspan="7">Module Coordinator: Dr. Amila Jayasinghe</td></tr>
<tr><td colspan="2">Learning Outcome</td><td colspan="5">The students should be able to,
1. apply appropriate planning techniques for rational decision making of different stages of planning process
2. apply the simulation of planning techniques in virtual space</td></tr>
<tr><td colspan="2">Outline Syllabus</td><td colspan="5">• Introduction to planning techniques
• Methodology and application of planning techniques:
o SWOT analysis
o Sieve Map technique
o Gaming
o Potential Surface technique
o Delphi Method
o Analytic Hierarchy Process
o Costs Benefits analysis
o Network analysis
o Critical path method
o Causal Loop Analysis
o Scenario Analysis
o Decision Tree Method
• Evaluation of planning goals and strategies using planning techniques</td></tr>
<tr><td colspan="2">Teaching/learning and Assessment strategies</td><td colspan="5">T/L strategy: Mixture of lectures, seminars, guided readings and guidance on key sources of reference material. Students are frequently challenged in all teaching situations to develop logical arguments, analyse problems, seek and evaluate alternative explanations, and justify the intellectual positions they hold.

Assessment: By continuous assessment; Continuous assessments include individual hands-on activities.

Continuous Assessment – 100%</td></tr>
<tr><td colspan="2">Recommended Readings</td><td colspan="5">Department of Communities and Local Government, 2009 Multi criteria analysis: a manual, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/7612/1132618.pdf French, S. (1988)

Ellis Horwood. Decision Theory: an introduction to the mathematics of rationality</td></tr>
</table>

<table>
<tr><td>Code</td><td>TP5104</td><td>Title</td><td colspan="3">Governance, Planning and Environmental Law</td><td>GPA</td></tr>
<tr><td rowspan="2">C/E</td><td rowspan="2">Compulsory</td><td rowspan="2">Hours per Week</td><td>Lectures</td><td>1.5</td><td rowspan="2">Credit</td><td rowspan="2">02</td></tr>
<tr><td>Lab/Studio/Field</td><td>1.5</td></tr>
<tr><td colspan="7">Module Coordinator : Dr. Rangajeewa Rathnayaka / Plnr. Prathibhani Bandusena</td></tr>
<tr><td colspan="2">Learning Outcomes</td><td colspan="5">The students should be able to,
1. describe planning, development, property and environmental related statutes and their implications on environmental planning;
2. construct a comprehensive knowledge/discourse in planning and environment related statutes.
3. apply governance practices and their implications on environmental planning.</td></tr>
<tr><td colspan="2">Outline Syllabus</td><td colspan="5">• Environmental Planning Laws & their limitations
• Planning as a process and the limitations of existing development controls
• The principles of judicial review of administrative actions
• Impact of planning decisions
• Principles of good urban governance and planning
• Governance index
• Planning local and state government systems
• Governance models for urban innovation in different contexts and Governance dynamics
• Collaboration among public, political and other stakeholders</td></tr>
<tr><td colspan="2">Teaching/learning and Assessment strategies</td><td colspan="5">T/L strategy: Mixture of lectures, seminars, guided readings and guidance on key sources of reference material.
Assessment: By continuous assessments and written examination; Continuous assessments include essay writing and case studies.
• Written Examination – 60%-70%
• Continuous Assessment – 30%-40%</td></tr>
<tr><td colspan="2">Recommended Readings</td><td colspan="5">Gunningham, Neil. 2009. "Environment Law, Regulation and Governance: Shifting Architectures." Journal of Environmental Law 21 (2):179-212.

Schultz, L., Folke, C., Österblom, H. and Olsson, P., 2015. Adaptive governance, ecosystem management, and natural capital. Proceedings of the National Academy of Sciences, 112(24), pp.7369-7374.

Milder, J. C., Scherr, S.J., Bracer, C. (2010). Trends and Future Potential of Payment for Ecosystem Services to Alleviate Rural Poverty in Developing Countries. Ecology and Society, 15(2), 4.</td></tr>
</table>

<table>
<tr><td>Code</td><td>TP5105</td><td>Title</td><td colspan="3">Planning Theory and Strategic Intervention</td><td>GPA</td></tr>
<tr><td rowspan="2">C/E</td><td rowspan="2">Compulsory</td><td rowspan="2">Hours per Week</td><td>Lectures</td><td>1.5</td><td rowspan="2">Credits</td><td rowspan="2">02</td></tr>
<tr><td>Lab/Studio/Field</td><td>1.5</td></tr>
<tr><td colspan="7">Module Coordinator : Dr. Jagath Munasinghe</td></tr>
<tr><td colspan="2">Learning Outcomes</td><td colspan="5">The students should be able to,
1. explain planning theories and concepts related to the origin, growth and the form of human settlements and their planning
2. compose knowledge on the complex socio-cultural and political forces integrated with decision making processes
3. exemplify the principles of strategic planning.</td></tr>
<tr><td colspan="2">Outline Syllabus</td><td colspan="5">• The concept of strategic planning
• Historic normative & contemporary social, economic and geographic theories
• Concepts of human settlement forms and their planning
• Theoretical interpretations of the problems and issues in human settlements
• Planning processes and related theories.</td></tr>
<tr><td colspan="2">Teaching/learning and Assessment strategies</td><td colspan="5">T/L strategy: Mixture of lectures, seminars, guided readings and guidance on key sources of reference material.

Assessment: By continuous assessments and written examination; Continuous assessments include essay writing, case studies and presentations.
• Written Examination – 60%-70%
• Continuous Assessment – 30%-40%</td></tr>
<tr><td colspan="2">Recommended Readings</td><td colspan="5">French, S. (1988) Decision Theory: an introduction to the mathematics of rationality Ellis Horwood.

King, A. D. (2004). Spaces of global cultures: architecture, urbanism, identity. London; New York: Routledge.

Huyssen, A. (2008). Other cities, other worlds: urban imaginaries in a globalizing age. Durham: Duke University Press.

Packer, George. 2006. The Megacity: a Reporter at Large. The New Yorker 82 (37), Nov 13: 64-75.

Watson, Vanessa (2003) 'Conflicting rationalities: implications for planning theory and ethics', Planning Theory & Practice, 4:4, 395-407.

Yiftachel, Oren, Re-engaging Planning Theory? Towards 'South-Eastern' Perspectives.</td></tr>
</table>

<table>
<tr><td>Code</td><td>TP5106</td><td>Title</td><td colspan="3">Environmental Planning Studio I (Regional Scale)</td><td>GPA</td></tr>
<tr><td rowspan="2">C/E</td><td rowspan="2">Compulsory</td><td rowspan="2">Hours per Week</td><td>Lectures</td><td></td><td rowspan="2">Credits</td><td rowspan="2">06</td></tr>
<tr><td>Lab/Studio/Field</td><td>18</td></tr>
<tr><td colspan="7">Module Coordinator: Prof. P.K.S Mahanama</td></tr>
<tr><td colspan="2">Learning Outcomes</td><td colspan="5">The students should be able to,
1. explain role of spatial planning at regional scale to promote environment conservation, social benefits and economic development.
2. design environmental policies at broader policy framing level with a special concern on ‘environmental and spatial systems’ and statutory requirements;
3. produce innovative thinking towards planning issues at broader policy framing level.</td></tr>
<tr><td colspan="2">Outline Syllabus</td><td colspan="5">• Planning as a process
• Precedence studies
• Delineation of an environmental planning region
• Situation analysis - Predictions, modeling, scenario building, risk analysis, tradeoff analysis
• Problem framing and prioritization
• Spatial visioning
• Spatial Strategy formulation
• Frame the sustainable spatial strategy
• Implementation mechanism & tools</td></tr>
<tr><td colspan="2">Teaching/learning and Assessment strategies</td><td colspan="5">T/L strategy: Mixture of lectures, studios, seminars, presentations, case studies, field visits, workshops, public consultations, perception surveys, brain storming and group works.
This is complemented and reinforced by enhanced presentation, analytical and planning skills developed through studios and seminar discussions, tutorials and group activities.

Assessment: By continuous assessments. Assessments include presentations, and portfolio submissions.
• Continuous Assessment – 100%</td></tr>
<tr><td colspan="2">Recommended Readings</td><td colspan="5">Meadows, D. H. 2008. Thinking in Systems: A Primer. Earthscan. Ch. 1. (entire, passim)

Balassiano, Katia. 2011. Tackling “wicked problems” in planning studio courses. Journal of Planning Education and Research 31(4):449-460.

Holden, Meg. 2012. Is integrated planning any more than the sum of its parts? Considerations for planning sustainable cities. Journal of Planning Education and Research 32(3):305-318.</td></tr>
</table>

Code	TP5107	**Title**	**Planning for Climate Change, Risk and Uncertainty**			GPA
C/E	Elective	**Hours per Week**	**Lectures**	1.5	**Credits**	02
			Lab/Studio/Field	1.5		
Module Coordinator : Prof. P.K.S Mahanama / Mrs. H.M.M Herath						
Learning Outcomes	The students should be able to, 1. conceptualize the implications of emerging global and national issues. 2. develop responsive adaptation strategies for climate change, disaster and other risk situations in the planning of human settlements.					
Outline Syllabus	• Climate change and its influence on urban ecosystems, rural land uses, transportation, spatial form of settlements, water use and agriculture systems. • Risk and uncertainties in decision making • Risk assessment and Risk management • Policy responses to climate change and other disasters • Resilient cities and ecosystems • Spatial planning and disaster risk reduction strategies					
Teaching /learning and Assessment strategies	**T/L strategy:** Mixture of lectures, seminars, guided readings and guidance on key sources of reference material. **Assessment:** By continuous assessments and written examination; Continuous assessments include essay writing, case studies and presentations. • Written Examination – 60%-70% • Continuous Assessment – 30%-40%					
Recommended Readings	Barry, R.G. and Chorley, R.J. (2009) Atmosphere, Weather and Climate. Morgan, G. and Henrion, M. (1990) Uncertainty: A guide to dealing with uncertainty in quantitative risk and policy analysis (Cambridge) Raisanen (2007) How reliable are climate models? Tellus 59A, 2-29. Moss, R. H., Edmonds, J. a, Hibbard, K. a, Manning, M. R., Rose, S. K., van Vuuren, D. P., Wilbanks, T. J. (2010). The next generation of scenarios for climate change research and assessment. Nature, 463(7282), 747–56. doi:10.1038/nature08823 James, R., Otto, F., Parker, H., Boyd, E., Cornforth, R., Mitchell, D., & Allen, M. (2014). Characterizing loss and damage from climate change. Nature Climate Change, 4(11), 938–939. doi:10.1038/nclimate2411 Thornton, T and Manasfi, N. 2010. Adaptation genuine and spurious: demystifying adaptation processes in relation to climate change Environment and Society: Advances in Research					

Code	TP5108	**Title**	**Cities, Regions and Economic Development**			GPA
C/E	Elective	**Hours per Week**	**Lectures**	1.5	**Credits**	02
			Lab/Studio/Field	1.5		
Module Coordinator : Dr.Jagath Munasinghe						
Learning Outcomes	The students should be able to, 1. explain a broader understating of the origin, growth and evolution of cities and regions responding to social, economic and political forces; 2. explain wider knowledge on the socio-economic issues in cities and regions; 3. apply knowledge on macro-economic development aspects for spatial planning.					
Outline Syllabus	• Theories and concepts of studying cities and regions • Urban development • Sociological analysis of socio-economic issues in cities and regions • Population trends • Economic development policies and strategies for settlements • Public and Private sector in economic development • Regional economic policies evaluation study as part and input to the Environmental Region Planning Project.					
Teaching/learning and Assessment strategies	**T/L strategy:** Mixture of lectures, seminars, guided readings and guidance on key sources of reference material. **Assessment:** By continuous assessments and written examination; Continuous assessments include essay writing, case studies and presentations. • Written Examination – 60%-70% • Continuous Assessment – 30%-40%					
Recommended Readings	Wall, D. (2014) The Sustainable Economics of Elinor Ostrom: Commons, contestation and craft. New York & London. Arrow, K et al. 1995. Economic growth, carrying capacity, and the environment. Science, Vol 268, pp520-521. Jackson, T. 2009. Prosperity without growth: economics for a finite planet. Earthscan: London. Read pp.49-86 (Ch 4 and 5).					

<table>
<tr><td>Code</td><td>TP5201</td><td>Title</td><td colspan="3">Infrastructure Planning</td><td>GPA</td></tr>
<tr><td rowspan="2">C/E</td><td rowspan="2">Compulsory</td><td rowspan="2">Hours per Week</td><td>Lectures</td><td>1.5</td><td rowspan="2">Credits</td><td rowspan="2">02</td></tr>
<tr><td>Lab/Studio/Field</td><td>1.5</td></tr>
<tr><td colspan="7">Module Coordinator : Dr. Amila Jayasinghe</td></tr>
<tr><td colspan="2">Learning Outcomes</td><td colspan="5">The students should be able to,
1. analyze the environmental infrastructure systems.
2. identify sustainable environmental infrastructure solutions at urban & regional scales
3. design the environmental infrastructure systems as catalyst for promoting of sustainable urban development
4. design the appropriate management solution for drinking water, wastewater, storm water and solid waste.</td></tr>
<tr><td colspan="2">Outline Syllabus</td><td colspan="5">• Planning of integrated infrastructure systems
• Regional & local scale
• Sustainable Transportation Planning
• Water and Sanitation Planning
o Water supply
o Waste water
o Storm water
• Solid waste management
o Municipal waste/E waste/Industrial waste/Biological waste/Hazardous waste
o Solid waste management techniques</td></tr>
<tr><td colspan="2">Teaching/learning and Assessment strategies</td><td colspan="5">T/L strategy: Mixture of lectures, site visits, seminars, guided readings and guidance on key sources of reference material.

Assessment: By continuous assessments and written examination; Continuous assessments include essay writing, case studies and presentations.
• Written Examination – 60%-70%
• Continuous Assessment – 30%-40%</td></tr>
<tr><td colspan="2">Recommended Readings</td><td colspan="5">Banister D, Anderton K, Bonilla D, Givoni M, Schwanen T (2011) Transportation and the environment. Annual Reviews of Environment and Resources 36, 247-270.

Richard Heinberg and Daniel Lerch (2010), Post Carbon Reader, Managing the 21st Century Sustainability Crisis

S N. Pollalis, A. Georgoulias, S. J. Ramos, D. Schodek (2012), Infrastructure Sustainability and Design, Routledge.</td></tr>
</table>

<table>
<tr><td>Code</td><td>TP5202</td><td>Title</td><td colspan="3">Environmental Management Systems (EMS)</td><td>GPA</td></tr>
<tr><td rowspan="2">C/E</td><td rowspan="2">Compulsory</td><td rowspan="2">Hours per Week</td><td>Lectures</td><td></td><td rowspan="2">Credits</td><td rowspan="2">02</td></tr>
<tr><td>Lab/Studio/Field</td><td>06</td></tr>
<tr><td colspan="7">Module Coordinator : Dr. Chethika Abenayake/ Dr. P.Wattage</td></tr>
<tr><td colspan="2">Learning Outcomes</td><td colspan="5">The students should be able to,
1. recognize the environmental responsibilities of a company in a quantifiable manner.
2. conduct a Technical Audit, including energy, noise, water and waste, which is the precursor to establishing an Environmental Policy, and if required, a formal Environmental Management System (EMS)</td></tr>
<tr><td colspan="2">Outline Syllabus</td><td colspan="5">• Environmental management principles
○ Guiding principles for environmental management
○ Developing guidelines
• Environmental standards and legislation
○ Understanding and Implementing of ISO 14001:2004
• Environmental management tools and practice.
○ Life Cycle Analysis
○ Process Analysis and Tests
○ Environmental auditing
○ Energy auditing
○ Green Building assessment
• Practical experience of designing environmental management system
○ Industrial visit
○ Case study</td></tr>
<tr><td colspan="2">Teaching/learning and Assessment strategies</td><td colspan="5">T/L strategy: Mixture of lectures, laboratory testing, seminars, industrial visits, case studies, guided readings and guidance on key sources of reference material.

Assessment: By continuous assessments; Continuous assessments include essay writing, portfolios, case studies and presentations.
• Continuous Assessment – 100%</td></tr>
<tr><td colspan="2">Recommended Readings</td><td colspan="5">Belcham, A. 2015. Manual of Environmental Management. Routledge, New York.

Haider, S. I. (2016). Environmental Management System ISO 14001: 2004: Handbook of Transition with CD-ROM: CRC Press.</td></tr>
</table>

Code		TP5203	**Title**	**Eco Sensitive Planning**			GPA
C/E		Compulsory	**Hours per Week**	**Lectures**		**Credits**	02
				Lab/Studio/Field	06		
	Module Coordinator : Mrs. H.M.M Herath						
	Learning Outcomes	The students should be able to, 1. explain the innovative ecological discourses. 2. design ecologically sensitive development plan 3. apply sustainable principles in spatial planning practices.					
	Outline Syllabus	• Integration of the structure, functions, and change of ecosystems with a land use planning framework • Theory and applications connecting sustainability sciences and practice to land use transformation. • Environmental sustainable discourses. • Concept of Green Cities, Sustainable cities, Eco Cities, Smart Cities • Environment sensitive practices in spatial planning • Case studies of eco sensitive planning practices in global context					
	Teaching/learning and Assessment strategies	**T/L strategy:** Mixture of lectures, field visits, seminars, guided readings and guidance on key sources of reference material. **Assessment:** By continuous assessments; Continuous assessments include essay writing, and portfolio. • Continuous Assessment – 100%					
	Recommended Readings	Davies (2016) The beginning of the Anthropocene. Monbiot, G. (2013) Feral: Searching for Enchantment on the Frontiers of Rewilding. Allen Lane. Smil, V. (2013) Harvesting the Biosphere: What we have taken from Nature. MIT Press. Hester, Randolph (2006). Design for Ecological Democracy, Cambridge, MA: MIT Press. Steiner, F. R. (2008). The living landscape: An ecological approach to landscape planning (2nd ed.). Washington, DC: Island Press.					

Code	TP5204	**Title**	**Project Financing & Management**			GPA
C/E	Compulsory	**Hours per Week**	**Lectures**	1.5	**Credits**	02
			Lab/Studio/Field	1.5		
Module Coordinator : Plnr. A.L. Susantha						
Learning Outcomes	The students should be able to, 1. examine the ways projects are conceived, planned, implemented, and evaluation 2. apply more flexible forms of financing and management methods and techniques to solve planning and management issues					
Outline Syllabus	• Concepts of project management • Overview of issues involved in managing projects • Project financing - types, sources, criteria and choice • Project financing and monitoring procedure and tools • Procurement • Arbitration and Negotiation • Leadership • Marketing					
Teaching/learning and Assessment strategies	**T/L strategy:** Mixture of lectures, seminars, guided readings and guidance on key sources of reference materials. **Assessment:** By continuous assessments and written examination; Continuous assessments include essay writing, case studies and presentations. • Written Examination – 60%-70% • Continuous Assessment – 30%-40%					
Recommended Readings	Project Management Institute (2013), A guide to the project management body of knowledge, Hallegatte, S., Shah, A., Lempert, R., Brown, C., & Gill, S. (2012). Investment Decision Making Under Deep Uncertainty: Application to Climate Change. World Bank, Washington, DC. http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2013/01/09/000158349_20130109112237/Rende red/PDF/wps6193.pdf Edwards C. and Lambert R. (2009), `Executing strategic change: understanding the critical management elements that lead to success' by Arnoud Franken, California Management Review.					

Code	TP5205	**Title**	**Environmental Planning Studio II (Local Scale)**			GPA
C/E	Compulsory	**Hours per Week**	**Lectures**		**Credits**	06
			Lab/Studio/Field	18		
Module Coordinator : Prof. P.K.S Mahanama						
Learning Outcomes		The students should be able to, 1. explain the local level planning process and the project formulation and implementation. 2. apply skills to use effective planning and environmental design tools in local level planning 3. design planning solutions at local scale (boundary delineation, site selection, environmental assessment, planning and obtaining statutory approval of the plan).				
Outline Syllabus		• Principles and concepts of local area planning& planning process • Environmental, social, technical, financial, institutional & risk assessments • Inventory of physical, biological, socio-economic, cultural attributes of local level • Data analysis techniques • Goals & vision formulation, spatial strategy formulation, strategy evaluation, public participation, action projects identification • Project implementation, Monitoring, Feedback and Project Financing				
Teaching/learning and Assessment strategies		**T/L strategy:** Mixture of lectures, studios, seminars, presentations, case studies, field visits, workshops, public consultations, perception surveys, brain storming and group works. This is complemented and reinforced by enhanced presentation, analytical and planning skills developed through studios and seminar discussions, tutorials and group activities. **Assessment:** By continuous assessments. Assessments include presentations, and portfolio submissions. • Continuous Assessment – 100%				
Recommended Readings		Beatley, Timothy (2000). Green urbanism: learning from European cities. Island Press. Calthorpe, Peter, and William Fulton (2001). The Regional City: Planning for the End of Sprawl. Covelo, CA. Diamond, Jared (2005). Collapse: How Societies Choose To Fail Or Succeed New York, NY: Viking. Hall, Peter (2001). Cities of tomorrow: an intellectual history of urban planning and design in the twentieth century. Oxford: Blackwell.				

Code	TP5206	**Title**	**Project Study**			GPA
C/E	Compulsory	**Hours per Week**	**Lectures**		**Credits**	06
			Lab/Studio/Field	18		
Module Coordinator: Dr. P. Wattage						
Learning Outcomes	The students should be able to, 1. define relevant literature. 2. develop the research project study in a logical structure and coherent form.					
Outline Syllabus	• Develop a research project in an area relevant to Environmental Planning under the supervision of a senior academic.					
Teaching/learning and Assessment strategies	**T/L strategy:** Mixture of lectures, seminars, guided readings and guidance on key sources of reference material. Students will be guided to develop logical arguments, analyse problems, seek and evaluate alternative explanations, and justify the intellectual positions they hold. **Assessment:** By continuous assessments. Assessments include presentations, and portfolio submissions. Continuous Assessment – 100%					
Recommended Readings	Manly, B F J (2009) Statistics for environmental science and management. 2nd edition. CRC Press, London. Moss, R. H., Edmonds, J. a, Hibbard, K. a, Manning, M. R., Rose, S. K., van Vuuren, D. P., … Wilbanks, T. J. (2010). The next generation of scenarios for climate change research and assessment. Nature, 463(7282), 747–56. doi:10.1038/nature08823 Luck, M. (1999). Your student research project. Aldershot, Hampshire: Gower					

Code	TP5207	**Title**	**Advanced GIS & RS for Environmental Planners**			GPA
C/E	Elective	**Hours per Week**	**Lectures**		**Credits**	02
			Lab/Studio/Field	06		
Module Coordinator : Dr.Wathsala Gunawardhana						
Learning Outcomes	The students should be able to, 1. describe principles and methods to analyze a set of spatial data 2. design spatial models to analyze a given phenomenon 3. evaluate, interpret and present the results of spatial analysis of a context 4. apply appropriate remote sensing data and processing methods to solve spatial problems					
Outline Syllabus	• Spatial analysis methodologies • Surface analysis and network analysis • Spatial interpolation • Spatial statistics • Temporal analysis • Spatial modeling • Applications of spectral analysis - vegetation, water, soil, geomorphology • RS in disaster management • Microwave RS Applications					
Teaching/learning and Assessment strategies	**T/L strategy:** Mixture of lectures, seminars, guided readings and guidance on key sources of reference material. Students are frequently challenged in all teaching situations to develop logical arguments, analyse problems, seek and evaluate alternative explanations, and justify the intellectual positions they hold. **Assessment:** By continuous assessment; Continuous assessments include individual hands-on activities. • Continuous Assessment – 100%					
Recommended Readings	Clarke, K. C. (2011). Getting started with geographic information systems (5th ed ed. Vol. Prentice Hall series in geographic information science). Boston MA Netzband M., Stefanov W.L., and Redman C. (2007),Applied Remote Sensing for Urban Planning, Governance and Sustainability, Springer					

<table>
<tr><td>Code</td><td>TP5208</td><td>Title</td><td colspan="3">Demography, Society and Space</td><td>GPA</td></tr>
<tr><td rowspan="2">C/E</td><td rowspan="2">Elective</td><td rowspan="2">Hours per Week</td><td>Lectures</td><td>1.5</td><td rowspan="2">Credits</td><td rowspan="2">02</td></tr>
<tr><td>Lab/Studio/Field</td><td>1.5</td></tr>
<tr><td colspan="7">Module Coordinator : Dr. Rizvi Noordeen / Dr. Shanaka Kariyawasam</td></tr>
<tr><td colspan="2">Learning Outcomes</td><td colspan="5">The students should be able to,
1. illustrate the relationship between demography and environment
2. formulate a Demographic Profile for a given area
3. predict populations for different scenarios of development strategies
4. explain the importance of the socio-cultural dimensions in environment planning
5. survey the socio-economic context and analyze the survey findings</td></tr>
<tr><td colspan="2">Outline Syllabus</td><td colspan="5">• Introduction to demography in Planning
• Concepts and measures of Fertility/ Mortality/ Migration/ Social Mobility
• Demographic transition theory
• Population forecasting models /Sub population estimates
• Population projection models
• Basic sociological theories and concepts
• New urbanism
• The idea of “planning for people”
• Theories of Socio-Spatial Process
• Social issues and problems
• Social surveys and analytical methods of survey data</td></tr>
<tr><td colspan="2">Teaching/learning and Assessment strategies</td><td colspan="5">T/L strategy: Mixture of lectures, seminars, guided readings and guidance on key sources of reference materials.

Assessment: By continuous assessments and written examination; Continuous assessments include essay writing, case studies and presentations.
• Written Examination – 60%-70%
• Continuous Assessment – 30%-40%</td></tr>
<tr><td colspan="2">Recommended Readings</td><td colspan="5">Rowland, Donald. Demographic Methods & Concepts. Oxford University Press.

Dove, M.R. and Kammen, D.M. (2015). Science, society and the environment: applying anthropology and physics to sustainability. Routledge. Ch 1-2.

Preston, Samuel, Patrick Heuveline, and Michel Guillot (2001). Demography: Measuring and Modelling Population Processes. Malden, Massachusetts: Blackwell Publishers.

Poston, Dudley & Bouvier, Leon. (2010). Population and Society: An Introduction to Demography. Cambridge University Press.</td></tr>
</table>

Code	**TP5209**	**Title**	**Heritage in Planning**			**GPA**
C/E	**Elective**	**Hours per Week**	**Lectures**		**Credits**	**02**
			Lab/Studio/Field	06		
Module Coordinator : Dr. Naduni Wickramaarachchi						
Learning Outcomes		The students should be able to, 1. explain theories and practices in heritage planning. 2. apply protection and conservation approaches of places with cultural and heritage significance.				
Outline Syllabus		• Concepts and theories of culture and heritage in settlement planning • Heritage conservation tools and techniques • Sacred area planning • World heritage movements and contemporary practices in Sri Lanka • Legislative framework for conservation of cultural heritage sites				
Teaching/learning and Assessment strategies		**T/L strategy:** Mixture of lectures, seminars, field visits, guided readings and guidance on key sources of reference material. **Assessment:** By continuous assessments. Assessments include presentations, and essays. Continuous Assessment – 100%				
Recommended Readings		Atran, S. and D. Medin. (2005). The Cultural Mind: Environmental Decision Making and Cultural Modeling Within and Across Populations. Psychological Review 112(4): 744–776. Fielden, B & Jokilheto, J. (1993) Management Guidelines for World Cultural Heritage Sites ICCROM, Rome. BSI Standards Publication BS 7913: 2013 Guide to the conservation of historic buildings				

Code	**TP6301**	**Title**	**Research Methods & Statistics for Environmental Planners**			**GPA**
C/E	**Compulsory**	**Hours per Week**	**Lectures**		**Credits**	**02**
			Lab/Studio/Field	06		
Module Coordinator : Dr. P. Wattage / Dr. Rangajeewa Rathnayake						
Learning Outcomes	The students should be able to, 1. identify the components of a literature review process and critically analyze published research 2. formulate hypotheses for a research 3. apply quantitative, qualitative and mixed methods approaches to research 4. apply appropriate strategies in managing ethical principles of research 5. apply appropriate sampling methods and survey instruments in research 6. develop comprehensive research proposals					
Outline Syllabus	• Introduction to basic concepts of research and the research process • Research ethics and integrity • Hypothesis development • Literature review • Qualitative Research Methods • Quantitative Research Methods and Statistics • Mixed Methods Research • Data collection instruments and sampling • Reporting Results of Data Analysis					
Teaching/learning and Assessment strategies	**T/L strategy:** Mixture of lectures, seminars, lab works and guided readings. **Assessment:** By continuous assessments. Assessments include individual assignments. Continuous Assessment – 100%					
Recommended Readings	Ruth, M. (2015). Handbook of Research methods and Applications in Environmental Studies: Edward Elgar Publishing, Incorporated. Manly, B F J (2009) Statistics for environmental science and management. 2nd edition. CRC Press, London. Matthews, J. R., & Matthews, R. W. (2014). Successful Scientific Writing: A Step-by-Step Guide for the Biological and Medical Sciences (4th ed ed.). Cambridge: Cambridge University Press.					

<table>
<tr><td>Code</td><td>TP6302</td><td>Title</td><td colspan="3">Water Resources Planning & Management</td><td>GPA</td></tr>
<tr><td rowspan="2">C/E</td><td rowspan="2">Compulsory</td><td rowspan="2">Hours per Week</td><td>Lectures</td><td>1.5</td><td rowspan="2">Credits</td><td rowspan="2">02</td></tr>
<tr><td>Lab/Studio/Field</td><td>1.5</td></tr>
<tr><td colspan="7">Module Coordinator : Prof. P.K.S Mahanama</td></tr>
<tr><td colspan="2">Learning Outcomes</td><td colspan="5">The students should be able to,
1. explain the concept and principles of water resources planning, management policies and related practices
2. assess the potential of groundwater and surface water resources
3. solve with water supply/demand issues
4. design strategic water resources planning interventions</td></tr>
<tr><td colspan="2">Outline Syllabus</td><td colspan="5">Water Resources
Introduces the basics of Hydrology
Issues of catchment modification
Fundamentals of surface & groundwater management

Water and Society
Water Law (water quantity, water quality and water use)
International theory and practice

Economics of Water
Basic economic concepts related to water.
Economic analysis (how water contributes to economic welfare)

Water Management
Challenges pertaining to water management
Principles of environmental management tools
Integrated water resources management
Adaptive water management
Watershed management practices in Global context</td></tr>
<tr><td colspan="2">Teaching/learning and Assessment strategies</td><td colspan="5">T/L strategy: Mixture of lectures, seminars, field visits, and project based learning.
Assessment: By continuous assessments and written examination; Continuous assessments include hands-on activities and presentations.
• Written Examination – 60%-70%
• Continuous Assessment – 30%-40%</td></tr>
<tr><td colspan="2">Recommended Readings</td><td colspan="5">Biswas, A. K. (1997). Water Resources: Environmental Planning, Management, and Development: McGraw-Hill.

Grafton, R. Q., & Hussey, K. (2011). Water Resources Planning and Management: Cambridge University Press.

Jain, S. K., & Singh, V. P. (2003). Water Resources Systems Planning and Management: Elsevier Science.

Allen, M. R., & Ingram, W. J. (2002). Constraints on future changes in climate and the hydrologic cycle.

Vörösmarty, C. J., McIntyre, P. B., Gessner, M. O., Dudgeon, D., Prusevich, a, Green, P., Davies, P. M. (2010). Global threats to human water security and river biodiversity.</td></tr>
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<table>
<tr><td>Code</td><td>TP6303</td><td>Title</td><td colspan="3">Landscape Planning</td><td>GPA</td></tr>
<tr><td rowspan="2">C/E</td><td rowspan="2">Elective</td><td rowspan="2">Hours per Week</td><td>Lectures</td><td></td><td rowspan="2">Credits</td><td rowspan="2">02</td></tr>
<tr><td>Lab/Studio/Field</td><td>06</td></tr>
<tr><td colspan="7">Module Coordinator : Prof. Shirani Balasooriya</td></tr>
<tr><td colspan="2">Learning Outcomes</td><td colspan="5">The students should be able to,
1. demonstrate knowledge relating to landscape planning
2. demonstrate an understanding of the complexities of landscape issues and problems
3. demonstrate insight into the philosophies, ideologies and critical positions which underpin different approaches to landscape Planning</td></tr>
<tr><td colspan="2">Outline Syllabus</td><td colspan="5">• Theories and concepts of landscape planning
• Landscape Ecology and Conservation
• Ecological Sampling Methods and Spatial analysis
• Planting Design and Management
• Landscape Design and Environmental Aesthetics Landscape Modeling
• Park and Recreational Planning
• Landscape Restoration</td></tr>
<tr><td colspan="2">Teaching/learning and Assessment strategies</td><td colspan="5">T/L strategy: Mixture of lectures, seminars, workshops, field visits, and project based learning.

Assessment: By continuous assessments. Assessments include presentations, and essays.
• Continuous Assessment – 100%</td></tr>
<tr><td colspan="2">Recommended Readings</td><td colspan="5">Turner, T. (2004). Landscape Planning And Environmental Impact Design: Taylor & Francis.

Selman, P. H. (2012). Sustainable Landscape Planning: The Reconnection Agenda: Routledge.

Nordh, Helena; Hägerhall, Caroline; Hartig, Terry: Urban nature as a resource for public health. The Routledge Companion to Landscape Studies, edited by Howard, Peter; Thompson, Ian; Waterton, Emma. Routledge. Milton Park. 296-307</td></tr>
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Code	**EP6304**	**Title**	**International Studies**			**GPA**
C/E	**Elective**	**Hours per Week**	**Lectures**		**Credits**	**02**
			Lab/Studio/Field	06		
Module Coordinator : Dr. Chethika Abenayake						
Learning Outcomes		The students should be able to, 1. explain an understanding on different planning systems of the world 2. explain on emerging global and regional trends in environmental planning 3. critique on international trends in environmental planning and awareness on planning processes in neighborhood countries.				
Outline Syllabus		• Planning cases from international context • Issues, specificities and appropriateness of planning interventions, and lessons drawn • Environmental planning related issues with a few planning agencies from Asia and other parts of the world, including India, Singapore, Pakistan, Malaysia.				
Teaching/learning and Assessment strategies		**T/L strategy:** Mixture of lectures, international study tour, seminars, and guided readings. **Assessment:** By continuous assessments. Assessments include presentations, and assignments. • Continuous Assessment – 100%				
Recommended Readings		Perera, N., & Tang, W. (2013). Transforming Asian Cities: Intellectual Impasse, Asianizing Space, and Emerging Translocalities: Routledge. Hamnett, S., & Forbes, D. (2012). Planning Asian Cities: Risks and Resilience: Taylor & Francis. Shin, H.B. (2011) 'Vertical accumulation and accelerated urbanism: the East Asian experience' pp.48-53 Robinson, Jennifer (2002), Global and World cities: a view from off the map Kris Olds, Globalization and the Development of Pacific Rim Mega – Projects				

<table>
<tr><td>Code</td><td>EP6401</td><td>Title</td><td colspan="3">Dissertation</td><td>GPA</td></tr>
<tr><td>Credits</td><td>Compulsory</td><td>Hours per Week</td><td>Lectures</td><td></td><td>Credits</td><td>15</td></tr>
<tr><td></td><td></td><td></td><td>Lab/Studio/Field</td><td>45</td><td></td><td></td></tr>
<tr><td colspan="7">Module Coordinator : Dr. Rangajeewa Rathnayake / Dr. Chethika Abenayake</td></tr>
<tr><td colspan="2">Learning Outcomes</td><td colspan="5">The students should be able to,
1. define a problem situation and formulate a focused research question, and carry out a scientific investigation using selected research method, tools and techniques.
2. develop a dissertation under the supervision of a senior academic.</td></tr>
<tr><td colspan="2">Teaching/learning and Assessment strategies</td><td colspan="5">T/L strategy: The dissertation forms a significant part of the course in terms of student interest, learning and assessment. The end product is a dissertation of not more than 15,000 words. This is an opportunity for students to investigate in-depth a problem of their choice within the broad conspectus of Environmental Planning.
A supervisor will be appointed to guide each student during this work. It is expected that the best of the dissertations will be worthy of publication, and all should show high quality, competent and creative scholarship. All dissertations will be judged on the degree to which they represent a logical, thorough, and intelligible report on a piece of original research, of a standard expected (SLQF 10).

Assessment: By a dissertation and vivas (Examination panel includes one examiner external to the University and one nominee from department's academic staff. Examiners must have demonstrable and substantial publications and research experience in the area under investigation and have the same level of qualification as that being examined (eg. MSc
qualifications to be able to examine a Masters candidate).The examiners must be able to report objectively and demonstrate no conflict of interest with the supervisory team and/or candidate.).
• Continuous Assessment – 100%</td></tr>
<tr><td colspan="2">Recommended Readings</td><td colspan="5">Manly, B F J (2009) Statistics for environmental science and management. 2nd edition. CRC Press, London.

Moss, R. H., Edmonds, J. a, Hibbard, K. a, Manning, M. R., Rose, S. K., van Vuuren, D. P., Wilbanks, T. J. (2010). The next generation of scenarios for climate change research and assessment. Nature, 463(7282), 747–56.
doi:10.1038/nature08823

Matthews, J. R., & Matthews, R. W. (2014). Successful Scientific Writing: A Step-by-Step Guide for the Biological and Medical Sciences (4th ed ed.). Cambridge: Cambridge University Press.

Martens, P., & McMichael, A. J. (2009). Environmental Change, Climate and Health: Issues and Research Methods: Cambridge University Press.

Ruth, M. (2015). Handbook of Research methods and Applications in Environmental Studies: Edward Elgar Publishing, Incorporated.</td></tr>
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