

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E. (Geotechnical Engineering)

PROPOSED TEACHING SCHEME

(W.E.F. July 2012)

Semester III

SR. No.	SUBJECT	TEACHING SCHEME(HOURS)			CREDITS
		THEORY	TUTORIAL	PRACTICAL	
734301	Environmental Geotechnology	2	0	0	2
734302	Major Elective IV - Rock Opening and Tunnels	4	0	2	5
730001	Seminar	0	0	4	2
730002	Presentation of Literature Review	--	--	--	2
730003	Dissertation Phase-I	0	0	18	9

GUJARAT TECHNOLOGICAL UNIVERSITY

Geotechnical Engineering

M.E. Semester: III

Subject Name: Rock Opening and Tunnels

Subject Code: 734302

Sr_No	Content
1.	Engineering Properties of rocks, Subsurface investigation in rock deposits.
2.	Classification and Index properties of rocks. Rock strength, deformation, friction on rock surfaces and failure criteria of rock.
3.	Allowable bearing pressure on footings on rock.
4.	Mine pillar structures-design of two dimensional and three dimensional rib pillars- compressive strength of rib pillars.
5.	Mining and Engineering applications- Energy released during excavations- Criteria of design in underground excavations- Rock tunneling- classification of tunnels- geological factors affecting tunnels- rock mass classification system for tunnels
6.	Rock pressure theories in tunneling- rock reinforcement – bolting, grouting and freezing.

Reference Book:

1. K.Szechy “Art of Tunnelling” Published by – “Atademiai kiado , Budapest 1973”
2. Obert&Duaill- “Rock Mechanics & Design of Structures in Rock”
3. Jager& Cook “ Fundamentals of Rock Mechanics”

GUJARAT TECHNOLOGICAL UNIVERSITY

Geotechnical Engineering

M.E. Semester: III

Subject Name: Environmental Geotechnology

Subject Code: 734301

Sr_No	Content
1.	Environmental cycles and their interaction -soil water environment interaction relation to geotechnical problems -pollution effect on soil behaviour and foundations -effect of bacteria -pore fluid on soil water behaviour -load factor versus environmental factor -environmental technology and public concerns
2.	Subsurface disposal of refuse -geotechnical considerations -technology and environmental impacts -load bearing capacity of compacted water fills -settlement of structures on uncompacted rubbish -criteria for geotechnical construction on sanitary landfills -ground improvement techniques in land fill areas -leachate contamination - control of gas generator -geomembranes in solid waste disposal
3.	Geotechnical and geohydrological aspects of hazardous waste management - hazardous waste control and storage system -evaluation of effects of hazardous waste disposal sites upon ground water aquifers - environmental geotechnical considerations
4.	Environmental effects caused by pile driving and their control -dynamic response of soil under environmental stress -contribution of environmental stress such as hazardous waste -acid rain, tree cutting etc. to mechanism of landslides -subsidence and sink holes in soils including dispersive clays -case studies

Reference Book:

1. Geotechnology of waste management -ISsa. S.Oweis, Raj P Khera, "PWS Publisers"
2. Waste Containment system, Waste stabilization & land fills, Hari D Sharma, Sangeeta P. Lewis.