



RAJASTHAN TECHNICAL UNIVERSITY, KOTA

SYLLABUS

III & IV Semester Common to all branches of UG Engineering & Technology

CEL101: Environmental Science

Credit: 2

Max. Marks: 150 (IA:50, ETE:100)

2L+0T+0P

SN	CONTENTS	Hours
1	Introduction to objective, scope and outcome of the subject	1
2	Introduction: Environmental Science: Definition, Scope and Importance; Ecosystem: Classification, Structure and Functions of an ecosystem; Food Chains, Food Web, Ecological Pyramids, Flow of Energy, Biogeochemical Cycles, Biodiversity: Threats to biodiversity, habitat loss, poaching of wildlife, man-wildlife conflicts; conservation of biodiversity	5
3	Natural Resources: Living and Non-living resources; Water resources: use and over utilization of surface and ground water, floods and droughts; Mineral resources: use and exploitation, environmental effects of extracting and using mineral resources; Energy resources: growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources; Land resources; forest resources.	6
4	Environmental Pollution & Control: Definition and classification of pollution; Air Pollution: Primary and secondary pollutants, Automobile and Industrial pollution, Ambient air quality standards. Water pollution: Sources and types of pollution, drinking water quality standards. Soil Pollution: Sources and types, Impacts of modern agriculture, degradation of soil. Noise Pollution: Sources and Health hazards, standards, Solid waste: Municipal Solid Waste management, composition and characteristics of e-Waste and its management. Wastewater Treatment methods: Primary, secondary and Tertiary. Overview of air pollution control technologies, Concepts of bioremediation.	12
5	Global Environmental Problems and Efforts: Climate change and its impacts on human environment. Ozone depletion, Deforestation and desertification, international conventions/Protocols: Earth summit, Kyoto protocol, and Montréal Protocol.	4
TOTAL		28



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RAJASTHAN TECHNICAL UNIVERSITY, KOTA

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HUL202: Economics and Financial Management

Credit: 3

3L+0T+0P

S.N.	CONTENTS	Hours
1	Introduction to Economics:- Meaning, nature, basic principles of economics, Economic problems: scarcity and choice, methodology of economics, basic economic models - circular flow of economic activity, production possibility frontier, economic systems.	5
2	Demand, supply, market equilibrium :- Demand, types and determinants of demand, supply, determinants of supply, elasticity of demand and supply, market equilibrium, demand forecasting.	6
3	Production, cost and revenue analysis :- Production function, Total, Average and marginal Products, The law of diminishing returns, isoquants, returns to scale, optimum factor combination, cost and cost curves, revenue concept, profit maximization.	6
4	Market structure and pricing theory:- Perfect competition, Monopoly, Monopolistic competition, oligopoly.	6
5	Major macroeconomic issues:- Macroeconomic objectives, National Income – concepts and measurement, Identities for both closed and open economies, Business cycles, economic growth, unemployment, inflation, fiscal and monetary policy tools, money – functions , Reserve Bank of India, commercial Banks .	8



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6	Financial management:- Introduction to financial management – meaning and scope, goals, approaches to finance function, role of financial manager, financial planning, financial statements- balance sheet, profit and loss account- introduction, present value - measuring the time value of money, managing risk, asset valuation, capital budgeting - concept and techniques, working capital, capital and money market.	8
TOTAL		39



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S.N	Suggested Readings
1.	Paul A. Samuelson, William D. Nordhaus, Economics, 20 th edition, SIE, Mc Graw hill India, 2019
2.	N. Gregory Mankiw, Principle of Economics. 6 th edition, Cengage learning 2012
3.	Mc Connell, Brue, Flynn, Economics, 19 edition, Mc Graw hill, 2012
4.	Deviga Vengedasalam, karunagaran Madhavan, Principles of economics, 3 edition, Oxford University Press 2013
5.	M.L. Jhingan, Principles of economics, Vrinda Publications, 2014
6.	Lipsey and Chrystal, Economics, 13 editions, Oxford university press, 2015.
7.	I M. Pandey, Fundamentals of Financial Management Vikas Publications New Delhi
8.	Khan & Jain, Basic Financial Management, Mc Graw Hill education, 2017
9.	Prasanna chandra, Fundamentals of Financial Management Mc Graw Hill education, 2020
10	John Sloman, Economics, Pearson India education services Pvt. Ltd. 2018



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III / IV Semester

Common to all branches of UG Engineering & Technology

HUL201: General Studies

Credit: 2

2L+0T+0P

S.N.	CONTENTS	Hours
1	Indian Economy: - Economic growth and development, economic and non-economic factors in economic development, human development, nature of Indian economy, structural changes, infrastructure – power coal, oil and gas, non-conventional energy sources, transport system, privatization and disinvestment, NITI Aayog.	6
2	Indian Polity: - Indian Political system, Democracy, federal system, central government, state government, relationship between centre-state, interstate relationship, citizenship, role of state in development, Human rights commission.	6
3	Indian Society: - Indian social system: structure and functions, social groups, social Stratification: caste, class and gender, social control, urban - rural development, contemporary problem of Indian society – Poverty, illiteracy, unemployment, social inequality.	6
4	Development Administration: - Major welfare schemes, education and health – system and new policies, e- governance, cyber crime – regulations and control.	4
5	Public Finance: - The Indian tax structure – direct and indirect taxes, Public expenditure – growth, composition and causes, public debt, deficit financing.	3
	TOTAL	25



UNIVERSITY DEPARTMENTS RAJASTHAN TECHNICAL UNIVERSITY, KOTA

S.N.	Suggested Readings
1.	V.K. Puri and S.K. Mishra, Indian Economy, 38 edition, 2018 Economy Himalaya Publishing House, 2020
2.	Ruddar Dutt and K.P.M. Sundaram. Indian Economy, 72 edition, S.chand & CO. 2016
3.	A.N. Agarwal, M.K. Agarwal Indian Economy, problems of development and planning, 42 edition, 2017,
4.	M. Laxmikanth, Indian Polity, 5 th edition, MC Graw Hill education, 2019
5.	Subhash C Kashyap Constitution of India, A handbook for students vitasta Publication, 2019
6.	D.D Basu Introduction is the constitution of India 24th edition 2020
7.	Srinivas, M.N. Social change in modern India. Orient Blackswan. Edition (1995).
8.	Singer, M.B. & Cohn, B.S. (eds) Structure and change in Indian society (Vol.47). Transaction Publishers edition, 1970
9.	Beteille, A., Caste, class, and power. University of California Press. (2020).
10.	Ahuja. R. Indian Social system. Rawat Publications. (1993).
11.	Ahuja. R. Society in Indian: Concepts, theories, and changing trends. Rawat Publication. (1999).
12.	Kothari, R. Politics in Indian. Orient Blackswan. (1970).
13.	Palmer, N.D. The Indian Political system (vol.5). Boston: Houghton Mifflin. (1971).
14.	Sarkar, S. Public administration in India. PHI Learning Pvt. Ltd. (2018).



UNIVERSITY DEPARTMENTS

RAJASTHAN TECHNICAL UNIVERSITY, KOTA

Course Name: General Studies

COs and CO- PO Mapping

CO1	Recall the basic concepts under focus area in Indian context.
CO2	Explain necessary depth and breadth in trans-disciplinary understanding of approaches related to economy, polity and society of India.
CO3	Demonstrate the understanding of issues related to Indian economy and public finance.
CO4	Review different aspects of polity, society and development administration in Indian context.
CO5	Compare the understanding of various concepts under the focus area.

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO 1	0	0	1	0	1	1	1	0	0	0	1	1
CO 2	0	0	2	0	1	2	2	0	0	1	2	1
CO 3	0	0	1	0	1	0	1	0	0	0	1	1
CO 4	0	0	2	0	0	2	2	0	0	1	2	1
CO 5	0	0	1	0	0	1	1	0	0	0	1	1



UNIVERSITY DEPARTMENTS
RAJASTHAN TECHNICAL UNIVERSITY, KOTA

SYLLABUS

V Semester

Common to all branches of UG Engineering & Technology

HUL203: Indian Constitution

Credit: 2

2L+0T+0P

S. No.	Contents	Hours
Unit-1	Introduction and Basic Information about Indian Constitution - Meaning of Constitution, Constituent Assembly : Organization and Functions, Indian Independence Act 1947, enforcement of the Constitution, Salient features of Indian Constitution, The Preamble of the Constitution.	5
Unit-2	Basic features of Indian Constitution - Fundamental Rights and Duties, Directive Principles of State Policy, Parliamentary System, Federal System, Amendment of Constitution- Power and Procedure, 73 rd , 74 th Amendment, Panchayati Raj, Ordinance Act and Law- Basic Concept, IT Act. 2000, Right to Information Act 2005.	5
Unit-3	Union Executive and State Executive - Powers and Functions of Indian President, Emergency Powers, Powers and Functions of Prime Minister, Cabinet and Council of Ministers, State Executive- Powers and Functions of Governor, Powers and Functions of Chief Minister, Functions of State Cabinet.	5
Unit-4	Union Legislature and State Legislature - Powers of Indian Parliament, Election and Functions of Both Houses, Rajya sabha and Lok sabha, Comparison Between Both Houses, Powers and Functions of State Legislature.	5
Unit-5	Judiciary – Powers and Functions of Supreme Court, Appointment of Judges, Powers and Functions of High courts and Subordinate Courts. Judicial Review, Judicial Activism. Public Interest Litigation (P.I.L.), Whistle Blowing Act., E- Governance.	5
Total		25



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S.N	Suggested Readings
1.	Granville Austin : The Indian Constitution : Cornerstone of a Nation, Oxford University press 2013.
2.	Subash C. Kashyap : Our Constitution : An Introduction to India's Constitution and Constitutional law. NBT, 2018.
3.	P. M. Bakshi : The Constitution of India, 18 th edition, Universal Law Publishing, 2022.
4.	D. D. Basu : Constitution of India, 25 th edition, PHI New Delhi, 2021.

Suggested Act. –

Information Technology Act 2000 with Latest Amendments.

R T I (Right to Information) Act 2005 with latest Amendment.



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RAJASTHAN TECHNICAL UNIVERSITY, KOTA

Course Name: **Indian Constitution**

COs and CO- PO Mapping

K1 CO1	Recall different concepts of Indian Constitution
K2 CO2	Review about responsibilities, rights, duties, administrative and judicial set up and other basic features of Indian Constitution.
K2 CO3	Distinguish and relate various aspects of Indian constitutional system.
K4 CO4	Analyse powers and functions of political institutions.

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	0	0	0	0	0	2	1	0	0	0	0	1
CO2	0	0	1	0	0	3	1	2	0	0	0	2
CO3	0	0	0	0	0	2	0	1	0	0	0	2
CO4	0	0	0	0	0	2	0	1	0	0	0	2



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VII Semester

Common to all branches of UG Engineering & Technology

HUL204: Innovation and Entrepreneurship

Credit: 3

3L+0T+0P

S. No.	Contents	Hours
1	Entrepreneurial Thinking – Entrepreneurship – concepts, role, entrepreneurial profile analysis – attributes and characteristics, Classification, entrepreneurial decision process, problems and challenges, basics of new venture creation process, Leadership- concept, approaches and styles, Motivation-theories, decision making.	7
2	Creativity and Idea Generation – Creative thinking, traits, theories of creative thinking process, sources of new ideas, Idea generation – methods, problem solving techniques, product development process, product and process design, product reengineering.	7
3	Business Plan and Entrepreneurial Finance – Business Plan –meaning and scope, information needs, Business plan format, Organizational Plan – legal forms, management, Marketing Plan – marketing research, steps in preparing marketing plan, marketing strategy, Production Plan. Entrepreneurial finance – Sources, Venture capital.	7
4	Innovation and Innovation Management – Innovation- concept, benefits, types, characteristics, Models of Innovation – static and dynamic, Innovation Process Models, Innovation strategies, Globalisation and Innovation, Technological Innovation, innovation cases.	9
5	Legal Environment for Entrepreneurs – types of laws, fundamentals of Intellectual Property, patent analysis, trademark, trade secret, licensing, contracts, entrepreneurial ecosystem.	9
Total		39



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S. No.	Suggested Readings
1	Robert D. Hisrich, Michael P Peters and Dean A Shepherd, Entrepreneurship, 10 th edition, Tata Mc Graw Hill Education Pvt-Ltd, 2010.
2	Poornima M Charantimath, Entrepreneurship Development and Small Business Enterprises, 7 Impression, Pearson education 2012.
3	Peter F.Drucker, Innovation and Entrepreneurship, New York: Harper and Row 1985.
4	David H. Holt, Entrepreneurship: New Venture Creation, 1 st edition Pearson education, 2016.
5	J.S. Saini, S.K. Dhamija, Entrepreneurship and small business, Rawat Publications 1998.
6	Vasant Desai, Small Scall Industries and Entrepreneurship, Himalaya Publishing House 2011.
7	Allan Afuah – Innovation Management, 2 nd edition, Oxford university Press,2009.
8	Richard L Hughes, Robert C Ginnett, Gordon J Curphy, Leadership, enhancing the lessons of experience, 6 th Edition, Tata Mc Graw Hill, 2008
9	Harold Koontz, Heinz Weihrich, Essentials of Management, An International, Innovation and Leadership Perspective, 10 th edition, Mc Graw Hill, 2017.
10	Vijay Kumar Khurana, Anil k. Saini, Management of Technology and Innovation for competitive advantage,2 nd Edition Ane Books Put Ltd, 2017.
11	Veena Keshav Pailwar, Business Environment, PH I learning Pvt. Ltd. 2014.
12	R.R. Barthwal, Industrial Economics, revised 3 rd edition, New Age International Publishers.2016.



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RAJASTHAN TECHNICAL UNIVERSITY, KOTA

Course Name: **Innovation and Entrepreneurship**

COs and CO- PO Mapping

K1 CO1	Recall different fundamentals of innovation and entrepreneurship.
K2 CO2	Identify the key issues underpinning entrepreneurship including an in-depth understanding of the dynamics of innovation.
K2 CO3	Interpret the major legal and financial issues for entrepreneurship.
K4 CO4	Analyse key processes required to Initiate and develop business enterprise
K3 CO5	Demonstrate creative problem solving attributes in the recognition and exploitation of product or process opportunities.

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	0	0	1	0	1	0	0	0	1	0	2	1
CO2	0	1	2	0	2	0	0	0	2	1	2	1
CO3	0	0	0	0	0	1	0	0	0	0	2	1
CO4	0	0	0	0	0	0	0	0	1	1	1	1
CO5	0	1	2	0	2	0	1	0	0	0	0	1