



DR24 REGULATIONS

M.Tech

CURRICULUM

(Applicable for the batches admitted from 2024-25)

DEPARTMENT OF CIVIL ENGINEERING
M.Tech. (Structural Engineering) Program

D.N.R. COLLEGE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS)

(Approved by AICTE, New Delhi & Affiliated to JNTUK, Kakinada)
Accredited with A++ Grade by NAAC & Accredited by NBA(B.Tech-CSE,ECE,&EEE)

Balusumudi, Bhimavaram, W.G. Dist., A.P., PIN-534 202

Ph: 08816-221238, Email: dnrcet@gmail.com ,Website: <https://dnrcet.org>



ANNEXURE-V
D.N.R. COLLEGE OF ENGINEERING & TECHNOLOGY
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M.Tech II year I – Semester

Structural Engineering

S.No.	Course Name	Category	Subject Code	L	T	P	C	Marks
1	Elective 5: Program Elective /MOOCS**	Elective		3	0	--	3	100
	a) Design of Pre-stressed Concrete structures		MT24SE2101A					
	b) Structural Health Monitoring		MT24SE2101B					
	c) Industrial Structures		MT24SE2101C					
2	Open Elective / MOOCS**	Elective		3	0	--	3	100
	a) Operations Research		MT24SE2102A					
	b) Construction Management		MT24SE2102B					
	c) Green Technology		MT24SE2102C					
3	Dissertation Phase-I / Industrial Project (To be continued and Evaluated next Semester)*	Academic coursework	MT24SEPDW	--	--	20	10	
Total Credits / Marks								16 200

* Evaluated and displayed in 4th Semester marks list

** Students Going for Industrial Project / Thesis will complete these courses through MOOCS.

Students can also choose SWAYAM or NPTEL with a 12 weeks course duration in PG level with 3 credits, but the chosen subject should not be covered in their M. Tech Course.

M.Tech II year II - Semester

Sl No	Course Name	Category	Subject Code	L	T	P	C	Marks
1	Project / Dissertation Phase II (Continued from II Yr. I Semester)	Academic coursework	MT24SEPDW	0	0	32	16	100
Total Credits / Marks								16 100

Audit course 1 & 2

1. English for Research Paper Writing
2. Disaster Management
3. Sanskrit for Technical Knowledge
4. Value Education
5. Constitution of India
6. Pedagogy Studies
7. Stress Management by Yoga
8. Personality Development through Life Enlightenment Skills.



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II Year - I Semester	L	T	P	C
	3	0	0	3
Program Elective 5- DESIGN OF PRE-STRESSED CONCRETE STRUCTURES (MT24SE2101A)				

Course Outcomes: At the end of the course, the student will be able to

CO1	Explain the principle, types and systems of prestressing and analyze the deflections.
CO2	Determine the flexural strength and design the flexural members, end blocks.
CO3	Analyze the statically indeterminate structures and design the continuous beam.
CO4	Design the tension and compression members and apply it for design of piles.
CO5	Analyze the stress, deflections, flexural and shear strength and apply it for the design of bridges.
CO6	Analyze the Composite construction of Pre-stressed and in-situ concrete.

Mapping of Course Outcomes with Program Outcomes:

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	1	1	2	1	--	2	1
CO2	1	1	2	2	--	2	1
CO3	1	2	2	2	--	2	1
CO4	--	1	2	3	--	2	1
CO5	1	2	2	3	--	2	1
CO6	1	2	2	2	--	2	1

1. Slightly 2. Moderately 3. Substantially Detailed Syllabus

UNIT I:

Introduction – Prestressing Systems – Pretensioning Systems – Postensioning Systems – High Strength Steel and Concrete - Analysis of Prestress - Resultant Stresses at a Section – Pressure Line or Thrust Line – Concept of Load Balancing - Losses of Prestress – Loss Due to Elastic Deformation of Concrete – Shrinkage of Concrete – Creep – Relaxation of Stress in Steel – Friction – Anchorage Slip.

UNIT II:

DEFLECTIONS OF PRESTRESSED CONCRETE MEMBERS: Importance of Control of Deflections – Factors Influencing Deflection – Short-term Deflections of Uncracked Members – Prediction of Long-time Deflections – Deflections of Cracked Members – Requirements of IS 1343-2012.

Ultimate Flexural Strength of Beams: Introduction, Flexural theory using first principles – Simplified Methods – Ultimate Moment of Resistance of untensioned Steel.

UNIT III:

COMPOSITE CONSTRUCTIONS: Introduction, Advantages, Types of Composite Construction, Analysis of Composite beams- Differential shrinkage- Ultimate Flexural and shear strength of composite sections- Deflection of Composite Beams. Design of Composite sections.

UNIT IV:

PRESTRESSED CONCRETE SLABS: Types Of Prestressed Concrete Floor Slabs- Design of Prestressed Concrete One Way and Two Way Slabs.

Prestressed Concrete Pipes and Poles : Circular prestressing- Types of Prestressed Concrete Pipes- Design of Prestressed Concrete Pipes - Prestressed Concrete Poles.



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UNIT V:

CONTINUOUS BEAMS: Advantage of Continuous Members – Effect of Prestressing Indeterminate Structures – Methods of Achieving Continuity – Methods of Analysis of Secondary Moments – Concordant Cable Profile – Guyon's Theorem. Redistribution of moments in a continuous beam.

Anchorage Zone Stresses in Beams : Introduction, Stress distribution in End Block – Anchorage zone stresses –Magnel's method- Guyon's Method - Anchorage zone Reinforcement.

TEXT BOOKS

1. Prestressed Concrete, 6e by N. Krishna Raju, Mc Graw Hill Publishers
2. Prestressed Concrete by K. U.Muthu, PHI Learning Pvt Limited

REFERENCES:

1. Prestressed Concrete Analysis and Design, Antone E. Naaman 2e, Techno Press 3000
2. Design of Prestressed Concrete- T. Y. Lin, Ned H. Burns 3e, Wiley Publications
3. Design of prestressed Concrete by E.G. Nawy
4. Prestressed Concrete by N. Rajagopalan, Narosa Publishing
5. IS1343 2012 Prestressed concrete Code of Practice



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II Year - I Semester	L	T	P	C
	3	0	0	3
Program Elective 5 - STRUCTURAL HEALTH MONITORING (MT24SE2101B)				

Course Outcomes: At the end of the course, the student will be able to

CO1	Diagnose the distress in the structure by understanding the causes and factors
CO2	Assess the health of structure using static field methods.
CO3	Assess the health of structure using dynamic field tests
CO4	Carryout repairs and rehabilitation measures of the structure

Mapping of Course Outcomes with Program Outcomes:

Course Out Comes	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	1	1	2	1	--	2	1
CO2	1	1	2	2	--	2	1
CO3	1	2	2	2	--	2	1
CO4	--	1	2	3	--	2	1

1. Slightly 2. Moderately 3. Substantially

UNIT-I

Structural Health: Factors affecting Health of Structures, Causes of Distress, Regular Maintenance

Structural Audit: Assessment of Health of Structure, Collapse and Investigation, Investigation Management, SHM Procedures

UNIT-II

Structural Health Monitoring: Concept, Various Measures, Structural Safety in Alteration Structural Audit: Assessment of Health of Structure, Collapse and Investigation, Investigation Management, SHM Procedures

UNIT-III

Dynamic Field Testing: Types of Dynamic Field Test, Stress History Data, Dynamic Response Methods, Hardware for Remote Data Acquisition Systems, Remote Structural Health Monitoring.

UNIT-IV

Introduction to Repairs and Rehabilitation of Structures: Case Studies (Site Visits), Piezo– electric materials and other smart materials, electro–mechanical impedance (EMI) technique, adaptations of EMI technique.

TEXT BOOKS

1. Structural Health Monitoring, Daniel Balageas, Claus Peter Fritzen, Alfredo Güemes, John Wiley and Sons, 2006.
2. Health Monitoring of Structural Materials and Components Methods with Applications, Douglas E Adams, John Wiley and Sons, 2007.

REFERENCES

1. Structural Health Monitoring and Intelligent Infrastructure, Vol1, J. P. Ou, H. Li and Z. D. Duan, Taylor and Francis Group, London, UK, 2006.
2. Structural Health Monitoring with Wafer Active Sensors, Victor Giurgutiu, Academic Press Inc, 2007.



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II Year - I Semester	L	T	P	C
	3	0	0	3
Program Elective 5 – INDUSTRIAL STRUCTURES (MT24SE2101C)				

Course Outcomes: At the end of the course, the student will be able to

CO1	Plan the functional requirements of structural systems for various industries.
CO2	Get an idea about the materials used and design of industrial structural elements.
CO3	Realize the basic concepts and design of power plant structures.
CO4	Design power transmission structures.
CO5	Possess the ability to understand the design concepts of Chimneys, bunkers and silos

Mapping of Course Outcomes with Program Outcomes:

Course Out Comes	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	--	--	1	--	--	--	1
CO2	--	--	1	--	--	--	1
CO3	--	--	1	--	--	--	1
CO4	--	--	--	3	--	3	
CO5	--	--	2	3	--	3	2

1. Slightly 2. Moderately 3. Substantially

Detailed Syllabus:

UNIT: I

Planning and functional requirements- classification of industries and industrial structures- planning for layout- requirements regarding lighting ventilation and fire safety- protection against noise and vibrations

UNIT: II

Industrial buildings- design of gantry girder- design of corbels and nibs- machine foundations

UNIT: III

Design of Pre Engineered Buildings- **Design of Roof Systems for Industrial Buildings** (Steel)

UNIT: IV

Power plant structures- Bunkers and silos- chimney and cooling towers-Nuclear containment structures

UNIT: V

Power transmission structures- transmission line towers- tower foundations- testing towers

TEXT BOOKS

1. Handbook on Machine Foundations by P. Srinivasulu and C. V. Vaidyanathan, Structural Engineering Research Center
2. Tall Chimneys- Design and Construction by S. N. Manohar Tata Mc Grawhill Publishing Company

REFERENCES:

1. Transmission Line Structures by S. S. Murthy and A. R. Santakumar McGraw Hill
2. SP 32: 1986, Handbook on functional requirements of Industrial buildings
3. Design of steel structures by N. Subramanian



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II Year - I Semester	L	T	P	C
	3	0	0	3
Open Elective: a). OPERATIONS RESEARCH (MT24SE2102A) (Common to M. Tech - Structural Engineering & Structural Design, Soil Mechanics & Foundation Engineering, Highway Engineering, and Transportation Engineering)				

OUTCOMES:

At the end of the course, the student will be able to

1. Formulate a linear programming problem for given problem and solve this problem by using Simplex techniques
2. Apply the dynamic programming to solve problems of discrete and continuous variables
3. Apply the concept of non-linear programming for solving the problems involving non-linear constraints
4. Carry out sensitivity analysis
5. Model the real world problem and simulate it

UNIT-I

Optimization Techniques, Model Formulation, models, General L.R Formulation, Simplex Techniques, Sensitivity Analysis, Inventory Control Models.

UNIT-II

Formulation of a LPP - Graphical solution revised simplex method - duality theory - dual simplex method - sensitivity analysis - parametric programming.

UNIT-III

Nonlinear programming problem - Kuhn-Tucker conditions min cost flow problem - max flow problem - CPM/PERT.

UNIT-IV

Scheduling and sequencing - single server and multiple server models - deterministic inventory models - Probabilistic inventory control models - Geometric Programming.

UNIT-V

Competitive Models, Single and Multi-Channel Problems, Sequencing Models, Dynamic Programming, Flow in Networks, Elementary Graph Theory, Game Theory Simulation.

REFERENCE:

1. Kanthi Swarup, P.K. Gupta and Man Mohan, Operations Research, 14 th Edition, Sultan Chand and Sons, New Delhi, 2008.
2. S. D. Sharma, Operations Research, Kedar Nath and Ram Nath, Meerut, 2008.
3. H.A. Taha, Operations Research, An Introduction, PHI, 2008
4. H.M. Wagner, Principles of Operations Research, PHI, Delhi, 1982.
5. J.C. Pant, Introduction to Optimization: Operations Research, Jain Brothers, Delhi, 2008
6. Hitler Libermann Operations Research: McGraw Hill Pub. 2009
7. Pannerselvam, Operations Research: Prentice Hall of India 2010
8. Harvey M Wagner, Principles of Operations Research: Prentice Hall of India 2010



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II Year - I Semester	L	T	P	C
	3	0	0	3
Open Elective: b) CONSTRUCTION MANAGEMENT (MT24SE2102B) (Common to M. Tech - Structural Engineering, Structural Engineering & Structural Design, Computer Aided Structural Analysis & Design, and Soil Mechanics & Foundation Engineering)				

COURSE OUTCOME:

1. Able to plan, coordination, and control of a project from beginning to completion.
2. Adopting the most effect method for meeting the requirement in order to produce a functionally and financially viable project.

UNIT -I

Management process- Roles. Management theories. Social responsibilities. Planning and strategic management. Strategy implementation. Decision making: tools and techniques – Organizational structure. Human resource management- motivation performance- leadership.

UNIT-II

Classification of Construction projects, Construction stages, Resources- Functions of Construction Management and its Applications. Preliminary Planning- Collection of Data- Contract Planning – Scientific Methods of Management: Network Techniques in construction management - Bar chart, Gant chart, CPM, PERT- Cost & Time optimization.

UNIT-III

Resource planning - planning for manpower, materials, costs, equipment. Labour -Scheduling - Forms of scheduling - Resource allocation. budget and budgetary control methods

UNIT-IV

Contract - types of contract, contract document, and specification, important conditions of contract – tender and tender document - Deposits by the contractor - Arbitration. negotiation - M.Book - Muster roll -stores.

UNIT-V

Management Information System - Labour Regulations: Social Security - welfare Legislation - Laws relating to Wages, Bonus and Industrial disputes, Labour Administration - Insurance and Safety Regulations - Workmen's Compensation Act -other labour Laws - Safety in construction: legal and financial aspects of accidents in construction. occupational and safety hazard assessment- **Role of Management in Fire Safety- Planning for Fire Safety- Management by Objectives and its Role in Safety, Health, and Environment (SHE) - Coordination of the Three Components of SHE.**

REFERENCE:

1. Ghalot, P.S., Dhir, D.M., Construction Planning and Management, Wiley Eastern Limited,1992.
2. Chitkara,K.K., Construction Project Management, Tata McGraw Hill Publishing Co, Ltd., New Delhi,998.
3. Punmia,B,C., Project Planning and Control with PERT and CPM, Laxmi Publications, New Delhi,1987.
4. Sengupta, B. &Guha, H, Construction Management and Planning by: Tata McGraw-hill publications.



II Year - I Semester	L	T	P	C
	3	0	0	3
Open Elective: c) GREEN TECHNOLOGY (MT24SE2102C) (Common to M. Tech - Structural Engineering, Structural Engineering & Structural Design, and Computer Aided Structural Analysis & Design)				

COURSE OUTCOMES:

Upon successful completion of this course, the students will be able to:

1. Enlist different concepts of green technologies in a project
2. Understand the principles of Energy efficient technologies
3. Estimate the carbon credits of various activities
4. Recognize the benefits of green fuels with respect to sustainable development.

UNIT- I

Introduction: Green Technology – definition- Importance – Historical evolution – advantages and disadvantages of green technologies-factors affecting green technologies- Role of Industry, Government and Institutions – Industrial Ecology – role of industrial ecology in green technology.

Cleaner Production (CP): Definition – Importance – Historical evolution - Principles of Cleaner Production– Benefits–Promotion – Barriers – Role of Industry.

UNIT- II

Cleaner Production Project Development and Implementation:

Government and Institutions – clean development mechanism, reuse, recovery, recycle, raw material substitution-Wealth from waste, case studies. Overview of CP Assessment Steps and Skills, Process Flow Diagram, Material Balance, CP Option Generation – Technical and Environmental Feasibility analysis – Economic valuation of alternatives - Total Cost Analysis – CP Financing – Preparing a Program Plan – Measuring Progress- ISO 14000.

UNIT- III

Pollution Prevention and Cleaner Production Awareness Plan – Waste audit – Environmental Statement, carbon credit, carbon sequestration, carbon trading, Life Cycle Assessment - Elements of LCA – Life Cycle Costing – Eco Labelling.

UNIT –IV

Availability and need of conventional energy resources, major environmental problems related to the conventional energy resources, future possibilities of energy need and availability. Non- conventional energy sources: Solar Energy-solar energy conversion technologies and devices, their principles, working and application.

UNIT- V

Green Fuels – Definition-benefits and challenges – comparison of green fuels with conventional fossil fuels with reference to environmental, economic and social impacts- public policies and market-driven initiatives.

Biomass energy: Concept of biomass energy utilization, types of biomass energy, conversion processes, Wind Energy, energy conversion technologies, their principles, equipment and suitability in Indian context; tidal and geothermal energy.



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REFERENCES:

1. 'Pollution Prevention: Fundamentals and Practice' by Paul L Bishop (2000), McGraw Hill International.
2. 'Cleaner Production Audit' by Prasad Modak, C.Visvanathan and MandarParasnis (1995), Environmental System Reviews, No.38, Asian Institute of Technology, Bangkok
3. 'Non-conventional Energy Sources' by Rai G.D.
4. 'Energy, The Solar Hydrogen Alternative' by Bokris J.O.
5. 'Waste Energy Utilization Technology' by Kiang Y. H.
6. 'Solar Energy' by Sukhatme S.P.
7. 'Pollution Prevention and Abatement Handbook – Towards Cleaner Production' by World Bank Group (1998), World Bank and UNEP, Washington D.C.
8. 'Handbook of Organic Waste Conversion' by Bewik M.W.M.



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II Year - I Semester	L	T	P	C
	0	0	20	10
Dissertation Phase-I (MT24SEPDW)				

Course Outcomes: At the end of the course, the student will be able to

CO1	Identifying the topic after thorough review of literature on chosen topic and Can able to do the Project either Experimental Work or analytical Work.
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Mapping of Course Outcomes with Program Outcomes::

Course Out Comes	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	1	--	2	2	3	3	3

1. Slightly 2. Moderately 3. Substantially



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II Year - II Semester
Dissertation (Phase-II)

Sl No	Course Name	Category	L	T	P	C	Marks
1	Project / Dissertation Phase II (Continued from II Yr. I Semester)	Academic coursework	0	0	32	16	100
Total Credits / Marks							16 100

Mapping of Course Outcomes with Program Outcomes::

Course Out Comes	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	1	--	2	2	3	3	3

1. Slightly 2. Moderately 3. Substantially



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AUDIT 1 and 2: ENGLISH FOR RESEARCH PAPER WRITING

Course objectives:

Students will be able to:

1. Understand that how to improve your writing skills and level of readability Learn about what to write in each section
2. Understand the skills needed when writing a Title Ensure the good quality of paper at very first-time submission.

Syllabus		
Units	CONTENTS	Hours
1	Planning and Preparation, Word Order, Breaking up long sentences, Structuring Paragraphs and Sentences, Being Concise and Removing Redundancy, Avoiding Ambiguity and Vagueness	4
2	Clarifying Who Did What, Highlighting Your Findings, Hedging and Criticising, Paraphrasing and Plagiarism, Sections of a Paper, Abstracts. Introduction	4
3	Review of the Literature, Methods, Results, Discussion, Conclusions, The Final Check.	4
4	Key skills are needed when writing a Title, key skills are needed when writing an Abstract, key skills are needed when writing an Introduction, skills needed when writing a Review of the Literature,	4
5	Skills are needed when writing the Methods, skills needed when writing the Results, skills are needed when writing the Discussion, skills are needed when writing the Conclusions	4
6	Useful phrases, how to ensure paper is as good as it could possibly be the first-time submission	4

Suggested Studies:

1. Goldbort R (2006) Writing for Science, Yale University Press (available on Google Books)
2. Day R (2006) How to Write and Publish a Scientific Paper, Cambridge University Press
3. Highman N(1998), Handbook of Writing for the Mathematical Sciences, SIAM. Highman's book.
4. Adrian Wallwork , English for Writing Research Papers, Springer New York Dordrecht Heidelberg London, 2011



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AUDIT 1 and 2: DISASTER MANAGEMENT

Course Objectives: -

Students will be able to:

1. Learn to demonstrate a critical understanding of key concepts in disaster risk reduction and humanitarian response.
2. Critically evaluate disaster risk reduction and humanitarian response policy and practice from multiple perspectives.
3. Develop an understanding of standards of humanitarian response and practical relevance in specific types of disasters and conflict situations.
4. Critically understand the strengths and weaknesses of disaster management approaches, planning and programming in different countries, particularly their home country or the countries they work in.

Syllabus		
Units	CONTENTS	Hours
1	Introduction Disaster: Definition, Factors And Significance; Difference Between Hazard And Disaster; Natural And Manmade Disasters: Difference, Nature, Types And Magnitude.	4
2	Repercussions of Disasters And Hazards: Economic Damage, Loss Of Human And Animal Life, Destruction of Ecosystem. Natural Disasters: Earthquakes, Volcanisms, Cyclones, Tsunamis, Floods, Droughts And Famines, Landslides And Avalanches, Man- made disaster: Nuclear Reactor Meltdown, Industrial Accidents, Oil Slicks And Spills, Outbreaks Of Disease And Epidemics, War And Conflicts.	4
3	Disaster Prone Areas In India Study Of Seismic Zones; Areas Prone To Floods And Droughts, Landslides And Avalanches; Areas Prone To Cyclonic And Coastal Hazards With Special Reference To Tsunami; Post-Disaster Diseases And Epidemics	4
4	Disaster Preparedness And Management Preparedness: Monitoring Of Phenomena Triggering A Disaster Or Hazard; Evaluation Of Risk: Application Of Remote Sensing, Data From Meteorological And Other Agencies, Media Reports: Governmental And Community Preparedness.	4
5	Risk Assessment Disaster Risk: Concept And Elements, Disaster Risk Reduction, Global And National Disaster Risk Situation. Techniques Of Risk Assessment, Global Co- Operation In Risk Assessment And Warning, People's Participation In Risk Assessment. Strategies for Survival.	4
6	Disaster Mitigation Meaning, Concept And Strategies Of Disaster Mitigation, Emerging Trends In Mitigation. Structural Mitigation And Non-Structural Mitigation, Programs of Disaster Mitigation In India.	4

Suggested Readings:

1. R. Nishith, Singh AK, "Disaster Management in India: Perspectives, issues and strategies "New Royal book Company.
2. Sahni, Pardeep Et.Al. (Eds.), " Disaster Mitigation Experiences And Reflections", Prentice Hall Of India, New Delhi.
3. Goel S. L. , Disaster Administration And Management Text And Case Studies" ,Deep &Deep Publication Pvt. Ltd., New Delhi.



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AUDIT 1 and 2: SANSKRIT FOR TECHNICAL KNOWLEDGE

Course Objectives

1. To get a working knowledge in illustrious Sanskrit, the scientific language in the world\
2. Learning of Sanskrit to improve brain functioning
3. Learning of Sanskrit to develop the logic in mathematics, science & other subjects enhancing the memory power
4. The engineering scholars equipped with Sanskrit will be able to explore the huge knowledge from ancient literature

Syllabus

Unit	Content	Hours
1	Alphabets in Sanskrit, Past/Present/Future Tense, Simple Sentences	4
2	Order, Introduction of roots, Technical information about Sanskrit Literature	4
3	Technical concepts of Engineering-Electrical,	4
4	Technical concepts of Engineering - Mechanical.	4
5	Technical concepts of Engineering - Architecture.	4
6	Technical concepts of Engineering – Mathematics.	4

Suggested reading

1. “Abhyaspustakam” – Dr.Vishwas, Samskrita-Bharti Publication, New Delhi
2. “Teach Yourself Sanskrit” Prathama Deeksha-Vempati Kutumbshastri, Rashtriya Sanskrit Sansthanam, New Delhi Publication
3. “India’s Glorious Scientific Tradition” Suresh Soni, Ocean books (P) Ltd., New Delhi.

Course Output

Students will be able to

1. Understanding basic Sanskrit language
2. Ancient Sanskrit literature about science & technology can be understood
3. Being a logical language will help to develop logic in students



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AUDIT 1 and 2: VALUE EDUCATION

Course Objectives

Students will be able to

1. Understand value of education and self-development
2. Imbibe good values in students
3. Let the should know about the importance of character

Syllabus

Unit	Content	Hours
1	Values and self-development –Social values and individual attitudes. Work ethics, Indian vision of humanism. Moral and non- moral valuation. Standards and principles. Value judgements	4
2	Importance of cultivation of values. Sense of duty. Devotion, Self-reliance. Confidence, Concentration. Truthfulness, Cleanliness. Honesty, Humanity. Power of faith, National Unity. Patriotism.Love for nature ,Discipline	4
3	Personality and Behavior Development - Soul and Scientific attitude. Positive Thinking. Integrity and discipline. Punctuality, Love and Kindness. Avoid fault Thinking.	4
4	Free from anger, Dignity of labour. Universal brotherhood and religious tolerance. True friendship. Happiness Vs suffering, love for truth. Aware of self-destructive habits. Association and Cooperation. Doing best for saving nature	4
5	Character and Competence –Holy books vs Blind faith. Self-management and Good health. Science of reincarnation. Equality, Nonviolence ,Humility, Role of Women.	4
6	All religions and same message. Mind your Mind, Self-control. Honesty, Studying effectively	4

Suggested reading

1. Chakroborty, S.K. “Values and Ethics for organizations Theory and practice”, Oxford University Press, New Delhi

Course outcomes

- Students will be able to
- 1.Knowledge of self-development
 2. Learn the importance of Human values
 - 3.Developing the overall personality



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AUDIT 1 and 2: CONSTITUTION OF INDIA

Course Objectives:

Students will be able to:

1. Understand the premises informing the twin themes of liberty and freedom from a civil rights perspective.
2. To address the growth of Indian opinion regarding modern Indian intellectuals' constitutional role and entitlement to civil and economic rights as well as the emergence of nationhood in the early years of Indian nationalism.
3. To address the role of socialism in India after the commencement of the Bolshevik Revolution in 1917 and its impact on the initial drafting of the Indian Constitution.

Syllabus		
Units	Content	Hours
1	History of Making of the Indian Constitution: History Drafting Committee, (Composition & Working)	4
2	Philosophy of the Indian Constitution: Preamble Salient Features	4
3	Contours of Constitutional Rights & Duties: Fundamental Rights Right to Equality Right to Freedom Right against Exploitation Right to Freedom of Religion Cultural and Educational Rights Right to Constitutional Remedies Directive Principles of State Policy Fundamental Duties.	4
4	Organs of Governance: Parliament Composition Qualifications and Disqualifications Powers and Functions Executive President Governor Council of Ministers Judiciary, Appointment and Transfer of Judges, Qualifications Powers and Functions	4
5	Local Administration: District's Administration head: Role and Importance, Municipalities: Introduction, Mayor and role of Elected Representative, CE of Municipal Corporation. Pachayati raj: Introduction, PRI: ZilaPachayat. Elected officials and their roles, CEO ZilaPachayat: Position and role. Block level: Organizational Hierarchy (Different departments), Village level: Role of Elected and Appointed officials, Importance of grass root democracy	4
6	Election Commission: Election Commission: Role and Functioning. Chief Election Commissioner and Election Commissioners. State Election Commission: Role and Functioning. Institute and Bodies for the welfare of SC/ST/OBC and women.	4

Suggested reading

1. The Constitution of India, 1950 (Bare Act), Government Publication.
2. Dr. S. N. Busi, Dr. B. R. Ambedkar framing of Indian Constitution, 1st Edition, 2015.
3. M. P. Jain, Indian Constitution Law, 7th Edn., Lexis Nexis, 2014.
4. D.D. Basu, Introduction to the Constitution of India, Lexis Nexis, 2015.

Course Outcomes: Students will be able to:

1. Discuss the growth of the demand for civil rights in India for the bulk of Indians before the arrival of Gandhi in Indian politics.
2. Discuss the intellectual origins of the framework of argument that informed the conceptualization of social reforms leading to revolution in India.
3. Discuss the circumstances surrounding the foundation of the Congress Socialist Party [CSP] under the leadership of Jawaharlal Nehru and the eventual failure of the proposal of direct elections through adult suffrage in the Indian Constitution.
4. Discuss the passage of the Hindu Code Bill of 1956.



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AUDIT 1 and 2: PEDAGOGY STUDIES

Course Objectives: Students will be able to:

1. Review existing evidence on the review topic to inform programme design and policy making undertaken by the DfID, other agencies and researchers.
2. Identify critical evidence gaps to guide the development.

Syllabus		
Units	Content	Hours
1	Introduction and Methodology: Aims and rationale, Policy background, Conceptual framework and terminology Theories of learning, Curriculum, Teacher education. Conceptual framework, Research questions. Overview of methodology and Searching.	4
2	Thematic overview: Pedagogical practices are being used by teachers in formal and informal classrooms in developing countries. Curriculum, Teacher education.	4
3	Evidence on the effectiveness of pedagogical practices Methodology for the in depth stage: quality assessment of included studies. How can teacher education (curriculum and practicum) and the school curriculum and guidance materials best support effective pedagogy?	4
4	Theory of change. Strength and nature of the body of evidence for effective pedagogical practices. Pedagogic theory and pedagogical approaches. Teachers' attitudes and beliefs and Pedagogic strategies.	4
5	Professional development: alignment with classroom practices and follow-up support Peer support Support from the head teacher and the community. Curriculum and assessment Barriers to learning: limited resources and large class sizes	4
6	Research gaps and future directions Research design Contexts Pedagogy Teacher education Curriculum and assessment Dissemination and research impact.	4

Suggested reading

1. Ackers J, Hardman F (2001) Classroom interaction in Kenyan primary schools, Compare, 31 (2): 245-261.
2. Agrawal M (2004) Curricular reform in schools: The importance of evaluation, Journal of Curriculum Studies, 36 (3): 361-379.
3. kyeampong K (2003) Teacher training in Ghana - does it count? Multi-site teacher education research project (MUSTER) country report 1. London: DFID.
4. Akyeampong K, Lussier K, Pryor J, Westbrook J (2013) Improving teaching and learning of basic maths and reading in Africa: Does teacher preparation count? International Journal Educational Development, 33 (3): 272-282.
5. Alexander RJ (2001) Culture and pedagogy: International comparisons in primary education. Oxford and Boston: Blackwell.

Course Outcomes: Students will be able to understand:

1. What pedagogical practices are being used by teachers in formal and informal classrooms in developing countries?
2. What is the evidence on the effectiveness of these pedagogical practices, in what conditions, and with what population of learners?
3. How can teacher education (curriculum and practicum) and the school curriculum and guidance materials best support effective pedagogy?



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AUDIT 1 and 2: STRESS MANAGEMENT BY YOGA

Course Objectives

1. To achieve overall health of body and mind
2. To overcome stress

Syllabus

Unit	Content	Hours
1	Definitions of Eight parts of yoga. (Ashtanga)	5
2	Yam and Niyam. Do's and Don't's in life. Ahinsa, satya, astheya, bramhacharya and aparigraha	5
3	Yam and Niyam. Do's and Don't's in life. Shaucha, santosh, tapa, swadhyay, ishwarpranidhan	5
4	Asan and Pranayam Various yog poses and their benefits for mind & body	5
5	Regularization of breathing techniques and its effects-Types of pranayam	4

Suggested reading

1. 'Yogic Asanas for Group Training-Part-I' : Janardan Swami YogabhyasiMandal, Nagpur
2. "Rajayoga or conquering the Internal Nature" by Swami Vivekananda, Advaita Ashrama (Publication Department), Kolkata

Course Outcomes:

Students will be able to:

1. Develop healthy mind in a healthy body thus improving social health also Improve efficiency



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AUDIT 1 and 2: PERSONALITY DEVELOPMENT THROUGH LIFE ENLIGHTENMENT SKILLS

Course Objectives

1. To learn to achieve the highest goal happily
2. To become a person with stable mind, pleasing personality and determination
3. To awaken wisdom in students

Syllabus

Unit	Content	Hours
1	Neetisatakam-Holistic development of personality Verses- 19,20,21,22 (wisdom) Verses-29,31,32 (pride & heroism) Verses- 26,28,63,65 (virtue)	4
2	Neetisatakam-Holistic development of personality Verses- 52,53,59 (don't's) Verses- 71,73,75,78 (do's)	4
3	Approach to day to day work and duties. Shrimad Bhagwad Geeta : Chapter 2-Verses 41,47,48	4
4	Chapter 3-Verses 13, 21, 27, 35, Chapter 6-Verses 5,13,17, 23, 35, Chapter 18-Verses 45,46, 48.	4
5	Statements of basic knowledge. Shrimad Bhagwad Geeta: Chapter2-Verses 56, 62, 68 Chapter 12 -Verses 13, 14, 15, 16,17, 18	4
6	Personality of Role model. Shrimad Bhagwad Geeta: Chapter2-Verses 17, Chapter 3-Verses 36,37,42, Chapter 4-Verses 18, 38,39 Chapter18 – Verses 37,38,63	4

Suggested reading

1. “Srimad Bhagavad Gita” by Swami Swarupananda Advaita Ashram (Publication Department), Kolkata
2. Bhartrihari's Three Satakam (Ni ti-sringar-vairagya) by P.Gopinath, Rashtriya Sanskrit Sansthanam, New Delhi.

Course Outcomes

Students will be able to

1. Study of Shri mad-Bhagwad-Geeta will help the student in developing his personality and achieve the highest goal in life
2. The person who has studied Geeta will lead the nation and mankind to peace and prosperity
3. The Study of Neetishatakam will help in developing versatile personality of students