1.3.1

ACADEMIC ENRICHMENT

DURING A.Y:2018-2019

SRI VENKATESWARA COLLEGES
SRIKAKULAM

SRI VENKATESWARA

COLLEGE OF ENGINEERING & TECHNOLOGY

ISO 9001:2015 Certified

(Approved by AICTE, New Delhi, Affiliated to JNTUGV, Vizianagaram)

Office: +9109705576693, email:principal_svcet@yahoo.com

Website: www.svcet.net

1.3.1. Institution integrates crosscutting issues relevant to Professional Ethics, Diversity and Inclusion, Human Values, Environment and Sustainability into the Curriculum Response:

Sri Venkateswara College of Engineering and Technology is committed to provide comprehensive and inclusive education to the student. Sri Venkateswara College of Engineering and Technology inculcates value added effective educational courses appertained to professional ethics, human values, environmental & sustainability into the curriculum for the improvement of health of local & global communities. As an institution of higher learning, it is our responsibility to construct a strong foundation in our students. Social engagement orients student's academic experiences to help them become critically engaged citizens, dedicated & contributing to the public good as our students are the NATION BUILDERS & THE AGENTS OF CHANGE.

1. Professional Ethics:

At Sri Venkateswara College of Engineering and Technology we believe in ethical behavior can give a significant identity to the student. We aim to produce graduates who not only excel in their respective fields but also uphold the highest standards of loyalty, discipline, professionalism and dedication. Our curriculum gives top priority for professional ethics. We also encourage open discussions and debates on ethical dilemmas to enhance critical thinking and moral reasoning.

2. Diversity and Inclusion:

Sri Venkateswara College of Engineering and Technology believe that a diversified produces a noble learning environment and prepares students to thrive in an inter connected. We organize different celebrations for different cultures, traditions and perspectives. Our college mainly focuses on present social issues discrimination, bias, and marginalization.

3. Human Values:

In our educational institution, we give utmost priority for strong human values. In our curriculum courses on character development, empathy, compassion, and self-awareness are included. This curriculum motivates the students to develop their personal growth and positive relationships. We encourage the students for their contribution to the society. We motivate the students towards the community services.

4. Environment and Sustainability:

At our Sri Venkateswara College of Engineering and Technology, we give the top priority for environment protection. We adopt suitable practices to protect the environment. Our campus is design to be ecofriendly and we actively encourage energy conservation, waste management and recycling. Students participate in environmental awareness campaigns, tree-planting drives, and projects that promote sustainable development.

5. Faculty Development:

The objective of faculty development in our college is improvising knowledge of faculty. For this purpose, our college conducts faculty development programs like workshops, seminars and training sessions with necessary tools and knowledge by inviting the resource persons from various disciplines.

In conclusion, SRI VENKATESWARA COLLEGE OF ENGINEERING AND TECHNOLOGY, SRIKAKULAM, ANDHRA PRADESH is committed to creating professionalism for students for the development of all round personality. It is our motto to develop the student as future leaders. By integrating crosscutting issues relevant to professional ethics, diversity and inclusion, human values, environment, and sustainability into our curriculum. We always put our efforts to produce graduates make a positive impact on society and contribute to a better and more sustainable world. We believe that education is not only about developing the knowledge but also creating responsible citizens of India. Our main objective is to prepare the students to face any challenge in their real-life situations.

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1.3.1. Institution integrates crosscutting issues relevant to Professional Ethics, Gender, Environment and Human Values, Sustainability in transacting the Curriculum.

I. Environmental Science

II. Professional Ethics & Human Values

III. Essence of Indian Traditional Knowledge

IV. Universal Human Values – 1 - Understanding Harmony

V. Universal Human Values – 2 - Understanding Harmony

VI. Constitution of India

VII. Research Methodology & IPR

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S.No.	Program Name	Name of the Course	I	II	III	IV
1	CIVIL ENGINEERING	Environmental Science	✓			
		Constitution of India		✓		
		Professional Ethics & Human Values			✓	

S.No.	Program Name	Name of the Course	I	II	III	IV
2	ELECTRICAL & ELECTRONICS ENGINEERING	Constitution of India	✓			
		Professional Ethics & Human Values		✓		
		Research Methodology			✓	
		Environmental Science			✓	
		Universal Human Values – 2 - Understanding Harmony				✓

S.No.	Program Name	Name of the Course	I	II	III	IV
3	MECHANICAL ENGINEERING	Environmental Science	✓			
		Constitution of India	✓			
		Essence of Indian Traditional Knowledge		✓		
		Professional Ethics & Human Values			✓	
		Research Methodology & Intellectual Property Rights			✓	
		Universal Human Values – 2 - Understanding Harmony				✓

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S.No.	Program Name	Name of the Course	I	II	III	IV
4	ELECTRONICS AND COMMUNICATION ENGINEERING	Environmental Science	✓			
		Constitution of India		✓		
		Essence of Indian Traditional Knowledge			✓	
		Research Methodology			✓	
		Universal Human Values				✓

S.No.	Program Name	Name of the Course	I	II	III	IV
5	COMPUTER SCIENCE AND ENGINEERING	Environmental Science	✓			
		Constitution of India		✓		
		Universal Human Values – 2 - Understanding Harmony				✓

S.No.	Program Name	Name of the Course	I	II	III	IV
6	ARTIFICIAL INTELLIGENCE & MACHINE LEARNING	Environmental Science	✓			
		Constitution of India	✓			
		Essence of Indian Traditional Knowledge		✓		
		Universal Human Values – 2 - Understanding Harmony				✓

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Name of The Course	Description
Environment Science	Based on this course, the Engineering graduates will understand/evaluate/develop technologies on the basis of ecological principles and environmental regulations which in turn helps in sustainable development.
Constitution of India	The Constitution of India is not only a legal document but it is also reflects social, political and economic perspectives of the Indian society, It reflects India's legacy of "diversity". It has been said that Indian constitution reflects ideals of its freedom movement; however, few critics have argued that it does not truly incorporate our own ancient legal heritage and cultural values. No law can be "static" and therefore the Constitution of India has also been amended more than one hundred times. These amendments reflect political, social and economic developments since the year 1950. The Indian judiciary and particularly the Supreme Court of India has played an historic role as the guardian of people. It has been protecting not only basic ideals of the Constitution but also strengthened the same through progressive interpretations of the text of the Constitution.
Professional Ethics & Human Values	To enable the students to create an awareness on Engineering Ethics and human values, to install Moral and Social Values and loyalty and to appreciate the right of others.
Research Methodology & Intellectual Property Rights	This course offers on Introduction to Intellectual property: international organizations, agencies and treaties, importance of intellectual property rights. Low of copy rights: Fundamental of copy right law, originality of material, Rights of reproduction, rights to perform the work publicly, copy right ownership issues, copy right registration, notice of copy right, international copy right law, law of patents: Foundation of patent law, patent searching process, ownership rights

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COURSE STRUCTURE AND SYLLABUS

For UG – R20

B. TECH - CIVIL ENGINEERING

(Applicable for batches admitted from 2020-2021)

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COURSE STRUCTURE

I Year – I SEMESTER

S. No	CourseCode	Subjects	L	T	P	Credits
1	BSC1101	Mathematics – I (Calculus & Differential Equations)	3	0	0	3
2	HSMC1101	Communicative English	3	0	0	3
3	BSC1102	Engineering Physics	3	0	0	3
4	ESC1101	Engineering Drawing	1	0	4	3
5	ESC1102	Engineering Geology (Integrated) (Theory & Lab)	2	0	2	3
6	HSMC1102	English Communication Skills Laboratory	0	0	3	1.5
7	BSC1103	Engineering Physics Lab	0	0	3	1.5
8	ESC1103	Basics of Civil Engg. Work Shop (Lab)	0	0	3	1.5
Total Credits			**19.5**			

I Year – II SEMESTER

S. No	Course Code	Subjects	L	T	P	Credits
1	BSC1201	Mathematics – II (Linear Algebra & Numerical Methods)	3	0	0	3
2	BSC1202	Engineering Chemistry	3	0	0	3
3	ESC1201	Engineering Mechanics	3	0	0	3
4	ESC1202	Programming for Problem Solving Using C	3	0	0	3
5	ESC1203	Building Materials and Concrete Technology	3	0	0	3
6	BSC1203	Engineering Chemistry Lab	0	0	3	1.5
7	ESC1204	Programming for problem Solving Using C Lab	0	0	3	1.5
8	ESC1205	Building Planning and Computer Aided Building Drawing	0	0	3	1.5
9	MC1201	Environmental Science (M. C)	2	0	0	0
Total Credits			**19.5**			

***Breakup of credits for Engineering Graphics/Engineering Workshop shall be 1-0-4 (as perAICTE model curriculum)**
Universities/Institutions may swap a few courses between 1st and 2nd semesters to balance the workload of teaching and laboratory schedule.

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II Year – I SEMESTER

S. No	Course Code	Course Title	L	T	P	Credits
1	BSC301	Mathematics -III (Vector Calculus, Transforms and PDE)	3	0	0	3
2	PCC301	Strength of Materials - I	3	0	0	3
3	PCC302	Fluid Mechanics	3	0	0	3
4	PCC302	Surveying and Geometrics	3	0	0	3
5	PCC303	Highway Engineering	3	0	0	3
6	PCC304	Concrete Technology Lab	0	0	3	1.5
7	PCC305	Highway Engineering Lab	0	0	3	1.5
8	PCC306	Surveying Field Work – I (Lab)	0	0	3	1.5
9	SC301	**Skill oriented course***	1	0	2	2
10	MC301	Constitution of India	2	0	0	0
		Total Credits				**21.5**

II YEAR – II SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	PC401	Complex Variables and Statistical Methods	3	0	0	3
2	PC402	Strength of Materials -II	3	0	0	3
3	ES401	Hydraulics and Hydraulic Machinery	3	0	0	3
4	PC403	Environmental Engineering	3	0	0	3
5	PC404	Managerial Economics & Financial Analysis	3	0	0	3
6	PC405	Environmental Engineering Lab	0	0	3	1.5
7	PC406	Strength of Material Lab	0	0	3	1.5
8	PC407	Fluid Mechanics & Hydraulics Machinery Lab	0	0	3	1.5
9	SC401	**Skill oriented course***	1	0	2	2
		Total Credits				**21.5**
Honors/ Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)			3	1	0	4

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III YEAR – I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	PC501	Professional Core courses (STRUCTURAL ANALYSIS)	3	0	0	3
2	PC502	Professional Core courses (DESIGN AND DRAWING OF REINFORCED CONCRETE STRUCTURES)	3	0	0	3
3	PC503	Professional Core courses (GEOTECHNICAL ENGINEERING-1)	3	0	0	3
4	OE501	Open Elective Course/Job Oriented elective (OE-1)	3	0	0	3
5	PE501	Professional Elective courses	3	0	0	3
6	PC504	Professional Core courses Lab Survey Camp (Field work)	0	0	3	1.5
7	PC505	Professional Core courses Lab (GEOTECHNICAL ENGINEERING LAB)	0	0	3	1.5
8	PC501	Skill advanced course/ soft skill course* Design of Special Structure, Chimney, Hinge Tanks designs, spill ways etc.,	1	0	2	2
9	MC501	Mandatory Course (AICTE Suggested) Professional Ethics and Human Values	2	0	0	0
10	PR501	Summer Internship 2Months (Mandatory) after second year (to be evaluated during V semester)	0	0	3	1.5
		Total Credits				**21.5**
Honors/ Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)			3	1	0	4

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III YEAR – II SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	PC601	Professional Core courses (DESIGN AND DRAWING OF STEEL STRUCTURES)	3	0	0	3
2	PC602	Professional Core courses (WATER RESOURCE ENGINEERING)	3	0	0	3
3	PC603	Professional Core courses (GEOTECHNICAL ENGINEERING-II)	3	0	0	3
4	PE601	Professional Elective courses	3	0	0	3
5	OE601	Open Elective Course/Job oriented elective (OE-2)	3	0	0	3
6	PC604	Professional Core courses Lab (ESTIMATION, COSTING AND CONTRACTS)	0	0	3	1.5
7	PC605	Professional Core courses Lab (REMOTE SENSING & GIS LAB)	0	0	3	1.5
8	PC606	Professional Core courses Lab CIVIL ENGINEERING PRACTICE	0	0	3	1.5
9	SC601	Skill advanced course/ soft skill course* Computational Tools	1	0	2	2
10	MC601	Mandatory course (AICTE) (EMPLOYABILITY SKILLS)	2	0	0	0
11	PR601	Industrial/Research Internship (Mandatory) 2 Months	0	0	3	1.5
		Total Credits				**23**
Honors/ Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)			3	1	0	4

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IV YEAR – I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	PE701	Professional Elective -III	3	0	0	3
2	PE702	Professional Elective -IV	3	0	0	3
3	PE703	Professional Elective -V	3	0	0	3
4	OE701	Open Elective Courses/ Job oriented elective (OE-III)	2	0	2	3
5	OE702	Open Elective Course/Job oriented elective (OE-IV)	2	0	2	3
6	HSC701	*Humanities and Social Science Elective	3	0	0	3
7	SC701	Skill advanced course/ soft skill course* Project planning, town planning,	1	0	2	2
8	PR701	Industrial/Research Internship 2 Months (Mandatory) after third year (to be evaluated during VII semester)	0	0	3	1.5
		Total Credits				**21.5**
Honors/ Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)			3	1	0	4

***There is a provision for the Universities/Institutions to implement AICTE mandatory course "Universal Human Values 2: Understanding Harmony" under Humanities and social science Elective in seventh semester for 3 credits.**

IV YEAR – II SEMESTER

S.NO	CATEGORY	COURSE TITLE	L	T	P/D	C
1	Major Project	PROJ	-	-	-	12
		INTERNSHIP (6 Months)				
		Total Credits				**12**

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I Year - II Semester		L	T	P	C
		2	0	0	0
ENVIRONMENTAL SCIENCE (MC1201)					

Learning Objectives:

The objectives of the course are to impart:

- Overall understanding of the natural resources.
- Basic understanding of the ecosystem and its diversity.
- Acquaintance on various environmental challenges induced due to unplanned anthropogenic activities.
- An understanding of the environmental impact of developmental activities.
- Awareness on the social issues, environmental legislation and global treaties.

UNIT-I:

Multidisciplinary nature of Environmental Studies: Definition, Scope and Importance – Sustainability: Stockholm and Rio Summit–Global Environmental Challenges: Global warming and climate change, acid rains, ozone layer depletion, population growth and explosion, effects;. Role of information technology in environment and human health.

Ecosystems: Concept of an ecosystem. - Structure and function of an ecosystem; Producers, consumers and decomposers. - Energy flow in the ecosystem - Ecological succession. - Food chains, food webs and ecological pyramids; Introduction, types, characteristic features, structure and function of Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems.

UNIT-II:

Natural Resources: Natural resources and associated problems.

Forest resources: Use and over – exploitation, deforestation – Timber extraction – Mining, dams and other effects on forest and tribal people.

Water resources: Use and over utilization of surface and ground water – Floods, drought, conflicts over water, dams – benefits and problems.

Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources.

Food resources: World food problems, changes caused by non-agriculture activities-effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity.

Energy resources: Growing energy needs, renewable and non-renewable energy sources use of alternate energy sources.

Land resources: Land as a resource, land degradation, Wasteland reclamation, man induced landslides, soil erosion and desertification; Role of an individual in conservation of natural resources; Equitable use of resources for sustainable lifestyles.

UNIT-III:

Biodiversity and its conservation: Definition: genetic, species and ecosystem diversity-classification - Value of biodiversity: consumptive use, productive use, social-Biodiversity at national and local levels. India as a mega-diversity nation - Hot-sports of biodiversity - Threats to biodiversity: habitat loss, man-wildlife conflicts. - Endangered and endemic species of India – Conservation of biodiversity: conservation of biodiversity.

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UNIT–IV:

Environmental Pollution: Definition, Cause, effects and control measures of Air pollution, Water pollution, Soil pollution, Noise pollution, Nuclear hazards. Role of an individual in prevention of pollution. - Pollution case studies, Sustainable Life Studies. Impact of Fire Crackers on Men and his well being.

Solid Waste Management: Sources, Classification, effects and control measures of urban and industrial solid wastes. Consumerism and waste products, Biomedical, Hazardous and e – waste management.

UNIT–V:

Social Issues and the Environment: Urban problems related to energy -Water conservation, rain water harvesting - Resettlement and rehabilitation of people; its problems and concerns. Environmental ethics: Issues and possible solutions. Environmental Protection Act -Air (Prevention and Control of Pollution) Act. –Water (Prevention and control of Pollution) Act -Wildlife Protection Act -Forest Conservation Act-Issues involved in enforcement of environmental legislation. -Public awareness.

Environmental Management: Impact Assessment and its significance various stages of EIA, preparation of EMP and EIS, Environmental audit. Ecotourism, Green Campus – Green business and Green politics.

The student should Visit an Industry / Ecosystem and submit a report individually on any issues related to Environmental Studies course and make a power point presentation.

Text Books:

1. Environmental Studies, K. V. S. G. Murali Krishna, VGS Publishers, Vijayawada
2. Environmental Studies, R. Rajagopalan, 2nd Edition, 2011, Oxford University Press.
3. Environmental Studies, P. N. Palanisamy, P. Manikandan, A. Geetha, and K. Manjula Rani; Pearson Education, Chennai

Reference:

1. Text Book of Environmental Studies, Deeshita Dave & P. UdayaBhaskar, Cengage Learning.
2. A Textbook of Environmental Studies, Shaashi Chawla, TMH, New Delhi
3. Environmental Studies, Benny Joseph, Tata McGraw Hill Co, New Delhi
4. Perspectives in Environment Studies, Anubha Kaushik, C P Kaushik, New Age International Publishers, 2014

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II Year - I Semester		L	T	P	C
		2	0	0	0
CONSTITUTION OF INDIA (MC)					

Course Objectives:

- To Enable the student to understand the importance of constitution
- To understand the structure of executive, legislature and judiciary
- To understand philosophy of fundamental rights and duties
- To understand the autonomous nature of constitutional bodies like Supreme Court and high court controller and auditor general of India and election commission of India.
- To understand the central and state relation financial and administrative.

UNIT-I

Introduction to Indian Constitution: Constitution meaning of the term, Indian Constitution - Sources and constitutional history, Features - Citizenship, Preamble, Fundamental Rights and Duties, Directive Principles of State Policy.

Learning outcomes:

After completion of this unit student will

- Understand the concept of Indian constitution
- Apply the knowledge on directive principle of state policy
- Analyze the History, features of Indian constitution
- Evaluate Preamble Fundamental Rights and Duties

UNIT-II

Union Government and its Administration Structure of the Indian Union: Federalism, Centre- State relationship, President: Role, power and position, PM and Council of ministers, Cabinet and Central Secretariat, LokSabha, RajyaSabha, The Supreme Court and High Court: Powers and Functions;

Learning outcomes:-After completion of this unit student will

- Understand the structure of Indian government
- Differentiate between the state and central government
- Explain the role of President and Prime Minister
- Know the Structure of supreme court and High court

UNIT-III

State Government and its Administration Governor - Role and Position - CM and Council of ministers, State Secretariat: Organisation, Structure and Functions

Learning outcomes:-After completion of this unit student will

- Understand the structure of state government
- Analyze the role Governor and Chief Minister
- Explain the role of state Secretariat
- Differentiate between structure and functions of state secretariat

UNIT-IV

A.Local Administration - District's Administration Head - Role and Importance, Municipalities - Mayor and role of Elected Representative - CEO of Municipal Corporation PachayatiRaj: Functions

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PRI: ZilaPanchayat, Elected officials and their roles, CEO ZilaPanchayat: Block level Organizational Hierarchy - (Different departments), Village level - Role of Elected and Appointed officials - Importance of grass root democracy

Learning outcomes:-After completion of this unit student will

- Understand the local Administration
- Compare and contrast district administration role and importance
- Analyze the role of Myer and elected representatives of Municipalities
- Evaluate Zillapanchayat block level organisation

UNIT-V

Election Commission: Election Commission- Role of Chief Election Commissioner and Election Commissionerate State Election Commission:, Functions of Commissions for the welfare of SC/ST/OBC and women

Learning outcomes:-After completion of this unit student will

- Know the role of Election Commission apply knowledge
- Contrast and compare the role of Chief Election commissioner and Commissiononerate
- Analyze role of state election commission
- Evaluate various commissions of viz SC/ST/OBC and women

References:

1. Durga Das Basu, Introduction to the Constitution of India, Prentice – Hall of India Pvt. Ltd.. New Delhi
2. SubashKashyap, Indian Constitution, National Book Trust
3. J.A. Siwach, Dynamics of Indian Government & Politics
4. D.C. Gupta, Indian Government and Politics
5. H.M.Sreevai, Constitutional Law of India, 4th edition in 3 volumes (Universal Law Publication)
6. J.C. Johari, Indian Government andPolitics Hans
7. J. Raj IndianGovernment and Politics
8. M.V. Pylee, Indian Constitution Durga Das Basu, Human Rights in Constitutional Law, Prentice – Hall of India Pvt. Ltd.. New Delhi
9. Noorani, A.G., (South Asia Human Rights Documentation Centre), Challenges to Civil Right), Challenges to Civil Rights Guarantees in India, Oxford University Press 2012

Resources:

1. nptel.ac.in/courses/109104074/8
2. nptel.ac.in/courses/109104045/
3. nptel.ac.in/courses/101104065/
4. www.hss.iitb.ac.in/en/lecture-details
5. www.iitb.ac.in/en/event/2nd-lecture-institute-lecture-series-indian-constitution

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III Year – I Semester	Mandatory course	L	T	P	C
		2	0	0	0
MC (501) PROFESSIONAL ETHICS AND HUMAN VALUES					

Course Objectives: To give basic insights and inputs to the student to inculcate Human values to grow as responsible human beings with proper personality. Professional Ethics instills the student to maintain ethical conduct and discharge their professional duties.

UNIT I: Human Values:

Morals, Values and Ethics – Integrity –Trustworthiness - Work Ethics – Service Learning – Civic Virtue – Respect for others – Living Peacefully – Caring – Sharing – Honesty –Courage – Value Time – Co-operation – Commitment – Empathy – Self-confidence – Spirituality- Character.

Principles for Harmony:
Truthfulness – Customs and Traditions -Value Education – Human Dignity – Human Rights –Fundamental Duties - Aspirations and Harmony (I, We & Nature) – Gender Bias - Emotional Intelligence – Salovey – Mayer Model – Emotional Competencies – Conscientiousness.

UNIT II: Engineering Ethics and Social Experimentation:

History of Ethics - Need of Engineering Ethics - Senses of Engineering Ethics- Profession and Professionalism – Self Interest - Moral Autonomy – Utilitarianism – Virtue Theory - Uses of Ethical Theories - Deontology- Types of Inquiry –Kohlberg's Theory - Gilligan's Argument –Heinz's Dilemma - Comparison with Standard Experiments — Learning from the Past –Engineers as Managers – Consultants and Leaders – Balanced Outlook on Law - Role of Codes – Codes and Experimental Nature of Engineering.

UNIT III: Engineers' Responsibilities towards Safety and Risk:

Concept of Safety - Safety and Risk – Types of Risks – Voluntary v/s Involuntary Risk –Consequences - Risk Assessment – Accountability – Liability - Reversible Effects - Threshold Levels of Risk - Delayed v/s Immediate Risk - Safety and the Engineer – Designing for Safety – Risk-Benefit Analysis-Accidents.

UNIT IV: Engineers' Duties and Rights:

Concept of Duty - Professional Duties – Collegiality - Techniques for Achieving Collegiality –Senses of Loyalty - Consensus and Controversy - Professional and Individual Rights –Confidential and Proprietary Information - Conflict of Interest-Ethical egoism - Collective Bargaining –Confidentiality - Gifts and Bribes - Problem solving-Occupational Crimes- Industrial Espionage Price Fixing-Whistle Blowing.

UNIT V: Global Issues:

Globalization and MNCs –Cross Culture Issues - Business Ethics – Media Ethics - Environmental Ethics – Endangering Lives - Bio Ethics - Computer Ethics - War Ethics – Research Ethics -Intellectual Property Rights.

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- Related Cases Shall is dealt where ever necessary.

Course Outcomes: It gives a comprehensive understanding of a variety issues that are encountered by every professional in discharging professional duties.

It provides the student the sensitivity and global outlook in the contemporary world to fulfill the professional obligations effectively.

TEXT BOOKS:

1. Professional Ethics by R. Subramanian – Oxford Publications, New Delhi.

2. Ethics in Engineering by Mike W. Martin and Roland Schinzinger - Tata McGraw-Hill – 2003.

REFERENCE BOOKS:

3. Professional Ethics and Morals by Prof.A.R.Aryasri, DharanikotaSuyodhana - Maruthi Publications.

4. Engineering Ethics by Harris, Pritchard and Rabin's, Cengage Learning, New Delhi.

5. Human Values & Professional Ethics by S. B. Gogate, Vikas Publishing House Pvt. Ltd., Noida.

6. Engineering Ethics & Human Values by M.Govindarajan, S.Natarajan and V.S.SenthilKumarPHI Learning Pvt. Ltd – 2009.

7. Professional Ethics and Human Values by A. Alavudeen, R.Kalil Rahman and M. Jayakumaran – University Science Press.

8. Professional Ethics and Human Values by Prof.D.R.Kiran-Tata McGraw-Hill – 2013

Human Values and Professional Ethics by Jayshree Suresh and B. S. Raghavan, S.Chand Publication.

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III Year – II Semester	MANDATORY COURSE	L	T	P	C
		2	0	0	0
MC-EMPLOYABILITY SKILLS					

Preamble: This course is introduced to enhance the soft and hard skills of students based on industry need and helping the student to get the employment in the competitive industrial environment.

Course Objective: In this course the student should understand:
(i) Aptitude skill, (ii) Soft skills, (iii) Skills required for campus placement interview

Unit 1: Aptitude Skills

Quantitative Aptitude:

Numbers, HCF and LCM, Problems on ages, Averages, Ratio and Proportion, Percentages, Profit and Los Partnership, Interest calculations, Time and Work, Time and Distance, Pipes and Cisterns, Mensuration.

Reasoning:

Number and Letter Analogy, Coding and decoding, Odd Man out, Symbols and Notations, Permutations an Combinations, Probability, Data Interpretation, Data Sufficiency, Clocks and Calendars, Deductions, Logic Connectives, Venn Diagrams, Cubes, Binary Logic, Ordering and Sequencing, Blood relations – Syllogisms Seating arrangement, Analytical Reasoning

Unit 2: Skills - I

Soft Skills: An Introduction – Definition and Significance of Soft Skills; Process, Importance an Measurement of Soft Skill Development. Self-Discovery: Discovering the Self; Setting Goals; Beliefs, Value Attitude, Virtue. Goal Setting-Vision Vs Mission Vs Goals, SMART Technique to Goal Setting, SWO Analysis. Self Esteem: Types of Self Esteem, Causes of Low Self Esteem, Merits of Positive Self Esteem an Steps to build a positive Self Esteem; Art of Compromise, Learn to Say: 'I Don't Know', Being organize Showing Self-awareness, Self-Assessment for Attainable Career Objectives.

Attitude & Confidence: Attitude Vs Skills Vs Knowledge, Attitude Vs Behavior, Developing Positiv Attitude and Confidence; Fear- Public Speaking, Steps to Overcome Fear, developing Positive Thinking an Attitude; Driving out Negativity; Meaning and Theories of Motivation; Enhancing Motivation Level Adjusting Your Attitude-Arrogance has no Place in the Workplace, Cultural Sensitivity in the Workplac Corporate Culture: Learning How to Fit In .Motivational Talk: Team Work, Team Vs Group, Stages in Tea Building, Mistakes to avoid and Lessons to Learn.

Unit 3: Skills – II:

Interpersonal Communication: Interpersonal relations; communication models, process and Barriers; tea communication; developing interpersonal relationships through effective Communication; essential form writing skills; corporate communication styles – assertion, Persuasion, negotiation. Listening: Listening V Hearing, Possible reasons for why people do not Listen at times, Active Listening Vs Passive Listenin Listening effect on relationships. Public Speaking: Skills, Methods, Strategies and Essential tips for effectiv public speaking. Group Discussion: Importance, Planning, Elements, Skills assessed; effectively disagreein Initiating, Summarizing and Attaining the Objective. On-Verbal Communication: Importance and Elements;

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Body Language-Postures, gestures, eye contact.

Teamwork and Leadership Skills: Concept of Teams; Building effective teams; Concept of Leadership an honing Leadership skills. Presentation Skills: Types, Content, Audience Analysis, Essential Tips – Befor During and After, Overcoming Nervousness. Etiquette and Manners: Social and Business. Time Management Concept, Essentials, Tips.

Unit 4: Personality Development: Meaning, Nature, Features, Stages, Models; Learning Skills; Adaptabilit Skills. Decision-Making and Problem-Solving Skills: Meaning, Types and Models, Group and Ethic Decision-Making, Problems and Dilemmas in application of these skills. Conflict Management: Conflict Definition, Nature, Types and Causes; Methods of Conflict Resolution

Stress Management: Stress - Definition, Nature, Types, Symptoms and Causes; Stress Analysis Models an Impact of Stress; Measurement and Management of Stress. Leadership and Assertiveness Skills: A Goo Leader; Leaders and Managers; Leadership Theories; Types of Leaders; Leadership Behavior; Assertivenes Skills. Emotional Intelligence: Meaning, History, Features, Components, Intrapersonal and Managemer Excellence; Strategies to enhance Emotional Intelligence.

Unit 5: Group Discussions (GD):
Stages of a GD, GD Vs Debate, Skills assessed in a GD, Blunders to be avoided, Dos & Don'ts, GD Practic Conducting practice sessions and Brain Storming Sessions, Evaluation, feedback on their performance
Resume Preparation: Resume Templates, Steps followed for resume preparation, Common mistakes in resume; Covering letter **Campus Placements Skills**: Stages of Campus Placement, Skills assessed in Campu Placements, Changing scenario and its Challenges & How to get ready, Motivational Talk on Positiv Thinking: Beliefs, Thoughts, Actions, Habits & Results (Success);

Interview Skills: Types of Interview, Interviewer and Interviewee – in-depth perspectives; Before, during an after the Interview; Tips for Success, Dress code and Grooming, Dos & Don'ts, Skills assessed in an Interview Mistakes to be avoided, How to equip oneself to excel; How to handle the typical Interview Questions; Moc Interviews: Unconventional HR questions, Practice sessions with Feedback, Simulated Testing: Previou model papers of companies, Business Terminology: Financial Terms such as Debt, Equity, Share, Workin Capital, Turnover, Net worth etc.; Vision, Mission, Objectives, Goals, Targets.

Course Outcomes: After studying this course the student should able
(i)To solve aptitude and reasoning problems,
(ii) Apply the soft skills in dealing the issues related to Employability
(iii) Successful in getting employment in campus placement interview

References:

1) B. K. Mitra, Personality Development and Soft Skills, Oxford University Press, 2011.
2) S.P. Dhanavel, English and Soft Skills, Orient Blackswan, 2010.
3) R.S.Aggarwal, A Modern Approach to Verbal & Non-Verbal Reasoning, S.Chand & Company Ltd., 2018.
4) Raman, Meenakshi & Sharma, Sangeeta, Technical Communication Principles and Practice, Oxford University Press, 2011.

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IV-Year – I Semester	HUMANITIES AND SOCIAL SCIENCE ELECTIVE	L	T	P	C
		3	0	0	3
HSC701-INTELLECTUAL PROPERTY RIGHTS AND PATENTS					

Course Outcomes (CO):

After studying these units, the student is expected to be able to:

i) understood the significance of innovations, distinguish different kinds of IPRs and know the legislative framework, practice and procedure relating to Patents, Copyrights, Trademarks, Designs, Trade Secrets, Geographical Indications, Traditional Knowledge and certain emerging areas.

ii) understood the various components of copyright law, its protection and enforcement to know the application of copyright law, its duration, advantages and the issues of 'fair use' and 'plagiarism' in the digital era.

iii) Understood the Patent law in India and its global instruments and spell out the procedural requirements of novelty, non-obviousness and inventive step involved in obtaining a Patent, its exclusive rights besides assignment and licensing patterns and how the patent does benefit the society.

iv) understood the conceptual and legal framework, procedural requirements relating to Trade Marks and its infringement and gives an insight how the Trademark is commercially advantageous to its owner and to prevent unfair competition and further safeguarding the trade secrets of the business enterprises.

v) Understood the importance of E-commerce, data security, online transactions and how the confidentiality and privacy can be safeguarded through the digital signatures and the prevention and punishment of cybercrimes under the law.

SYLLABUS:

Unit I: Introduction to Intellectual Property Rights (IPR)

Concept of Property - Introduction to IPR – IPR Tool Kit – International Instruments and IPR – WIPO - TRIPS – WTO – IPR Laws - IPR Protection and Regulation - Copyrights and Neighboring Rights – Industrial Property – Patents – Designs - Traditional Knowledge – Geographical Indications - Emerging Areas of IPR.

Law of Unfair Competition – Competition Commission.

Unit II: Copyrights and Neighboring Rights

Introduction to Copyrights – Principles of Copyright Protection – Law Relating to Copyrights - Subject Matters of Copyright – Copyright Ownership – Transfer and Duration – Right to Prepare Derivative Works – Rights of Distribution – Rights of Performers – Copyright Registration – Limitations – Infringement of Copyright – Case Law.

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Unit III: Patents

Introduction to Patents - Patent Laws in India – Patent Requirements – Product Patent and Process Patent - Patent Search - Registration and Grant of Patent – Exclusive and Monopoly Rights – Limitations - Ownership - Transfer — Revocation of Patent – Patent Appellate Board - Infringement of Patent – Double Patenting — Compulsory Licensing - Patent Cooperation Treaty – New developments - Software Protection and Computer related Innovations.

Unit IV: Trademarks & Trade Secrets

Introduction to Trademarks – Trademark Laws – Functions of Trademark – Marks Covered under Trademark Law - Trade Mark Registration – Maintenance – Transfer - Deceptive Similarities - Infringement – Remedies.

Introduction to Trade Secrets – Laws Relating to Trade Secrets – Safeguarding Trade Secrets – Physical Security – Employee Access Limitation – Confidentiality Agreements – Breach of Contract – Remedies.

Unit V: Cyber Laws and Cyber Crime

Introduction to Cyber Laws – Information Technology Act 2000 - Protection of Online and Computer Transactions - E-commerce - Data Security – Privacy - Authentication - Confidentiality - Digital Signatures – Certifying Authorities - Cyber Crimes - Prevention - Punishment – Liability of Network Providers.

Texts Books:

1. Intellectual Property Rights (Patents & Cyber Law), Dr. A. Srinivas. Oxford University Press, New Delhi.
2. Deborah E.Bouchoux: Intellectual Property, Cengage Learning, New Delhi.
3. PrabhuddhaGanguli: Intellectual Property Rights, Tata Mc-Graw –Hill, New Delhi
4. Richard Stim: Intellectual Property, Cengage Learning, New Delhi.
5. Kompal Bansal &Parishit Bansal Fundamentals of IPR for Engineers, B. S. Publications (Press).
6. Cyber Law - Texts & Cases, South-Western's Special Topics Collections.
7. R.Radha Krishnan, S.Bala Subramanian: Intellectual Property Rights, Excel Books. New Delhi.
8. M.Ashok Kumar and MohdIqbal Ali: Intellectual Property Rights, Serials Pub.

DEPARTMENT OF
ELECTRICAL & ELECTRONICS ENGINEERING
COURSE STRUCTURE
&
SYLLABUS-R20
(Along with HONORS and MINORS)

(Applicable for batches admitted from 2020-2021)

UNIVERSITY COLLEGE OF ENGINEERING VIZIANAGARAM *(A)*
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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA

ELECTRICAL AND ELECTRONICS ENGINEERING (EEE)

R20 Course Structure

Semester I (First Year)

S. No	Course Code	Course Title	L	T	P	C
1	R2011BS01	Calculus and Differential Equations	3	0	0	3
2	R2012BS04	Applied Physics	3	0	0	3
3	R2011ES13	Problem Solving and Programming using C	3	0	0	3
4	R2011ES02	Electrical Engineering Workshop	1	0	4	3
5	R2012ES04	Electrical Circuit Analysis-I	3	0	0	3
6	R2012ES05A	Basic Electrical Simulation Lab	0	0	3	1.5
7	R2012BS04A	Applied Physics Lab	0	0	3	1.5
8	R2011ES13A	Problem Solving and Programming using C Lab	0	0	3	1.5

Total Credits= 19.5

Semester II (First Year)

S. No	Course Code	Course Title	L	T	P	C
1	R2012BS02	Linear Algebra and Numerical Methods	3	0	0	3
2	R2011BS06	Applied Chemistry	3	0	0	3
3	R2012HS01	Communicative English	3	0	0	3
4	R2011ES11	Electronic Devices & Circuits	3	0	0	3
5	R2012ES06	Engineering Drawing	1	0	4	3
6	R2011BS06A	Applied Chemistry lab	0	0	3	1.5
7	R2012HS01A	English Communication Skills Lab	0	0	3	1.5
8	R2011ES11A	Electronic Devices & Circuits Lab	0	0	3	1.5
9	R2012MC01	Environmental Science	2	0	0	0

Total Credits = 19.5

Courses offered to other departments by EEE	
Basic Electrical & Electronics Engineering	CE, MECH, Metallurgy
Basic Electrical & Electronics Engineering lab	CE, MECH, Metallurgy
Basic Electrical Machines	ECE
Basic Electrical Machines lab	ECE

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ELECTRICAL AND ELECTRONICS ENGINEERING (EEE)

R20 Course Structure

Semester III (Second Year)

S. No	Course Code	Course Category	Course Title	L	T	P	C
1	R2021BS01	BSC	Vector Calculus, Transforms and PDE	3	0	0	3
2	R202102PC01	PCC	Electrical Circuit Analysis –II	3	0	0	3
3	R202102PC02	PCC	DC Machines & Transformers	3	0	0	3
4	R202102PC03	PCC	Electrical Measurements & Instrumentation	3	0	0	3
5	**R202102PC04**	PCC	Digital Electronics	3	0	0	3
6	R202102PC01A	PCC-LAB	Electrical Measurements & Instrumentation Lab	0	0	3	1.5
7	R202102PC02A	PCC-LAB	Electrical Circuits Lab	0	0	3	1.5
8	R202102PC03A	PCC-LAB	Digital Electronics Lab	0	0	3	1.5
9	R202102SC01	SC	Python Programming/ Certificate Course*	2	0	0	2
10	R2021MC01	MC	Professional Ethics & Human values	2	0	0	0
							Total Credits-=21.5

Note: * any certificate course offered by industries/Professional bodies/APSSDC or any other accredited bodies asapproved by the BoS.

Category	Credits
Basic Science Course	03
Professional Core Courses	16.5
Skill Oriented Courses	02
TOTAL CREDITS	**21.5**

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R20 Course Structure

Semester IV (Second Year)

S. No	Course Code	Course Category	Course Title	L	T	P	C
1	R202202ES01	ESC	Thermal & Hydro Prime Movers	3	0	0	3
2	R202202PC01	PCC	Control Systems	3	0	0	3
3	R202202PC02	PCC	Induction and synchronous machines	3	0	0	3
4	R202202PC03	PCC	Electrical power generation & economic concepts	3	0	0	3
5	R2022HS01	HSC	Management and organizational behavior	3	0	0	3
6	R202102ES01A	ES-LAB	Thermal & Hydro Prime Movers Lab	0	0	3	1.5
7	R202102PC01A	PCC-LAB	DC Machines and Transformers Lab	0	0	3	1.5
8	R202102PC02A	PCC-LAB	Control Systems Lab	0	0	3	1.5
9	R202202SC01	SC	Signals & Systems/ Certificate Course*	2	0	0	2
							Total Credits=21.5
Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)				4	0	0	4
Internship 2 Months (Mandatory) during summer vacation							

Note: * any certificate course offered by industries/Professional bodies/APSSDC or any other accredited bodies asapproved by the BoS.

Category	Credits
Humanities and Social Sciences	03
Professional Core Courses	12
Skill Oriented Courses	02
Engineering Science Courses	4.5
TOTAL CREDITS	**21.5**

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ELECTRICAL AND ELECTRONICS ENGINEERING (EEE)

R20 Course Structure

Semester V (Third Year)

S. No	Course Code	Course Category	Course Title	L	T	P	C
1	R203102PC01	PCC	Power Electronics	3	0	0	3
2	R203102PC02	PCC	Transmission & Distribution of Electrical Power	3	0	0	3
3	R203102PC03	PCC	Electromagnetic field theory	3	0	0	3
4	R203102OE01	OE/JOC	Open Elective -I	3	0	0	3
5	R203102PE01	PEC	Professional Elective-I	3	0	0	3
6	R203102PC01A	PCC-LAB	Induction and Synchronous Machines Lab	0	0	3	1.5
7	R203102PC02A	PCC-LAB	Electrical Simulation Lab	0	0	3	1.5
8	R203102SC01	SC	Advanced Communication Skills Lab -II/ Certificate Course on soft skills*	1	0	2	2
9	R2031MC01	MC	Indian constitution	2	0	0	0
Summer Internship 2 months (Mandatory) after second year (to be evaluated during V semester)				0	0	0	1.5
				Total Credits = 21.5			
Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)				4	0	0	4

Note: * any certificate course offered by industries/Professional bodies/APSSDC or any other accredited bodies asapproved by the BoS.

Category	Credits
Professional Elective Courses	03
Professional Core Courses	12
Open Elective Course/ Job oriented course	03
Skill advanced course/ Soft skill course	02
Summer Internship	1.5
TOTAL CREDITS	**21.5**

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ELECTRICAL AND ELECTRONICS ENGINEERING (EEE)

R20 Course Structure

Semester VI (Third Year)

S. No	Course Code	Course Category	Course Title	L	T	P	C
1	R203202PC01	PCC	Microprocessors and Microcontrollers	3	0	0	3
2	R203202PC02	PCC	Power System Analysis	3	0	0	3
3	R203202PC03	PCC	Power system protection	3	0	0	3
4	R203202PE01	PEC	Professional Elective-II	3	0	0	3
5	R203202OE01	OE/JOC	Open Elective –II	3	0	0	3
6	R203202PC01A	PCC-LAB	Power Electronics Lab	0	0	3	1.5
7	R203202PC02A	PCC-LAB	Power Systems Lab	0	0	3	1.5
8	R203202PC03A	PCC-LAB	Microprocessors and Microcontrollers Lab	0	0	3	1.5
9	R203202SC01	SC	Renewable Energy Sources/ Certificate Course*	2	0	0	2
10	R2032MC01	MC	IPR & Patents	2	0	0	0
							Total Credits = 21.5

Note: * any certificate course offered by industries/Professional bodies/APSSDC or any other accredited bodies asapproved by the BoS.

Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)	**4**	**0**	**0**	**4**

Industrial/ Research Internship (Mandatory) 2 months during summer vacation

Category	Credits
Professional Elective Courses	03
Professional Core Courses	13.5
Open Elective Course/ Job oriented course	03
Skill advanced course/ Soft skill course	02
TOTAL CREDITS	**21.5**

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R20 Course Structure

Semester VII (Fourth Year)

S. No	Course Code	Course Category	Course Title	L	T	P	C
1	R204102PE01	PEC	Professional Elective-III	3	0	0	3
2	R204102PE02	PEC	Professional Elective-IV	3	0	0	3
3	R204102PE03	PEC	Professional Elective-V	3	0	0	3
4	R204102OE01	OE/JOC	Open Elective -III	3	0	0	3
5	R204102OE02	OE/JOC	Open Elective -IV	3	0	0	3
6	R204102HS01	HSC	Universal Human Values-2: Understanding Harmony	3	0	0	3
7	R204102SC01	SC	Microgrid Technologies/ Certificate Course*	2	0	0	2
Industrial / Research Internship 2 months (Mandatory) after third year(to be evaluated during VII semester)				0	0	0	3
							Total Credits = 23
Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)				4	0	0	4

Note: * any certificate course offered by industries/Professional bodies/APSSDC or any other accredited bodies asapproved by the BoS.

Category	Credits
Professional Elective Courses	09
Open Elective Course/ Job oriented course	06
Skill advanced course/ Soft skill course	02
Humanities and Social Science Elective	03
Industrial / Research Internship	03
TOTAL CREDITS	**23**

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ELECTRICAL AND ELECTRONICS ENGINEERING (EEE)

R20 Course Structure

Semester VIII (Fourth Year)

S. No	Course Code	Course Category	Course Title	L	T	P	C
1	R204202PR01	Major project/ PROJ	Project work, seminar and internship in industry	0	0	0	12
INTERNSHIP (6 MONTHS)							
Total Credits = 12							

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

		L	T	P	C
I Year-I/II Semester		**2**	**0**	**0**	**0**
Name of the Subject: Environmental Science					

(Common to All branches)

Course Objectives:

The objectives of this course is to acquire knowledge on the

(i)The natural resources and their sustenance of the life and recognize the need to conserve the natural resources.

(ii)The concepts of ecosystem and its functions in the environment. The need for protecting the producers and consumers and their role in the food web.

(iii)The biodiversity of India and the threats to biodiversity, and the conservation practices to protect the biodiversity.

(iv)Various attributes of the pollution and their impacts and measures to reduce or control the pollution along with waste management.

(v)Social issues both rural and urban environment and the possible means to combat the challenges.

UNIT - I: MULTIDISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES 7hrs

Definition, Scope and Importance - Need for public Awareness.

Natural Resources : Renewable and non-renewable resources - Natural resources and associated problems - Forest resources - Use and over - exploitation, deforestation,– Timber extraction - Mining, dams and other effects on forest and tribal people - Water resources - Use and over utilization of surface and ground water - dams – benefits and problems - Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources,Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modem agriculture, fertilizer-pesticide problems, water logging, salinity.

UNIT - II: ECOSYSTEMS, BIODIVERSITY AND ITS CONSERVATION 7hrs

Ecosystems: Concept of an ecosystem. - Structure and function of an ecosystem - Producers, consumers and decomposers - Energy flow in the ecosystem - Ecological succession - Food chains, food webs and ecological pyramids - Introduction, types, characteristic features, structure and function of the ecosystems.

Biodiversity and its Conservation : Definition: genetic, species and ecosystem diversity – Bio geographical classification of India - Value of biodiversity: consumptive use, Productive use, social, ethical, aesthetic and option values - Biodiversity at global, National and local levels - India as a mega-diversity nation - Hot-sports of biodiversity - Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts - Endangered and endemic species of India - Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

UNIT - III Environmental Pollution and solid waste Management **6hrs**

Environmental pollution: Definition, Cause, effects and control measures of: Air Pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, nuclear hazards.

Solid Waste Management: Causes, effects and control measures of urban and industrial wastes -Role of an individual in prevention of pollution, Disaster management: floods, earthquake, cyclone and landslides.

UNIT - IV: SOCIAL ISSUES AND THE ENVIRONMBNT **6hrs**

Social Issues and the Environment: From Unsustainable to Sustainable development - Urban problems related to energy - Water conservation, rain water harvesting, Resettlement and rehabilitation of people; its problems and concerns. Environmental ethics: Issues and possible solutions - Climate change, global warming, acid rain and ozone layer depletion, Wasteland reclamation – Consumerism and waste products. - Environment Protection Act. - Air (Prevention and Control of Pollution) Act. -Water (prevention and control of Pollution) Act - Wildlife Protection Act - Forest Conservation Act.

UNIT - V: HUMAN POPULATION AND THE ENVIRONMENT **6hrs**

Human population and the Environment: Population growth, variation among nations' Population explosion - Family Welfare programme. - Environment and human health - Human Rights - Value Education - HIV/AIDS - Women and Child Welfare - Role of information Technology in Environment and human health.

Field Work: Visit to a local area to document environmental assets River/forest

Grassland/hill/mountain - Visit to a local polluted site-Urban/Rural/Industrial/Agricultural Study of common plants, insects, and birds - river, hill slopes.

Course Outcomes:

The students should be able to:

(i)Gain a higher level of personal involvement and interest in understanding and solving environmental problems.

(ii)Comprehend environmental problems from multiple perspectives with emphasis on human modern lifestyles and developmental activities.

(iii)Demonstrate knowledge relating to the biological systems involved in the major global environmental problems of the 2lst century.

(iv) Influence their society in proper utilization of goods and services, Recognize the interconnectedness of human dependence on the earth's ecosystems.

(v)Learn the management of environmental hazards and to mitigate disasters and have a clear understanding of environmental concerns and follow sustainable development practices.

Text Books:

(i)Text book of Environmental Studies for Undergraduate Courses by Erach Bharucha for University Grants Commission, Universities Press.

(ii)Environmental Studies by Palaniswamy - Pearson education.

(iii)Environmental Studies by Dr.S.Azeem Unnisa, Academic Publishing Company.

Reference Books:

(i)Textbook of Environmental Science by Deeksha Dave and E.Sai Baba Reddy, Cengage Publications.

(ii)Text book of Environmental Sciences and Technology by M.Anji Reddy, BS Publication.

(iii)Comprehensive Environmental studies by J.P.Sharma, Laxmi publications.

(iv) Environmental sciences and engineering - J. Glynn Henry and Gary W. Heinke – Prentice hall India Private limited.
(v) A Text Book of Environmental Studies by G.R.Chatwal, Himalaya Publishing House.
(vi) Introduction to Environmental engineering and science by Gilberl M. Masters and Wendell P.Ela - Prentice hall of India Private limited

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY: KAKINADA
UNIVERSITY COLLEGE OF ENGINEERING VIZIANAGARAM (AUTONOMOUS)
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

II Year - I Semester		L	T	P	C
		2	0	0	0
PROFESSIONAL ETHICS AND HUMAN VALUES (MC)					

Course Objectives:

i. This course is aimed at familiarizing researchers with the nuances of Intellectual Property Rights (IPR) so as to help them integrate the IPR process in their research activities.
ii. IPR internalization process to help the researchers to set targeted objectives in their research project and also to design and implement their research to clearly differentiate their work vis-a-vis the existing state of knowledge/ prior art.
iii. To give the PhD Students "hands- on –training" in literature, including patent search and documentation of research activities that would aid an IPR expert to draft, apply and prosecute IPR applications.
iv. To make the PhD students familiar with basics of IPR and their implications in Research, development and commercialization.
v. Facilitate the students to explore career options in IPR.

Unit I: Introduction to Intellectual Property Rights (IPR)

Introduction of IPR - Importance - Concept of Property - Introduction to IPR – International Instruments and IPR - WIPO - TRIPS – WTO -Laws Relating to IPR - IPR Tool Kit - Protection and Regulation - Copyrights and Neighboring Rights – Industrial Property – Patents - Agencies for IPR Registration – Traditional Knowledge –Emerging Areas of IPR - Layout Designs and Integrated Circuits – Use and Misuse of Intellectual Property Rights.

Unit II: Copyrights and Neighboring Rights

Introduction to Copyrights – Principles of Copyright Protection – Law Relating to Copyrights - Subject Matters of Copyright – Copyright Ownership – Transfer and Duration – Right to Prepare Derivative Works –Rights of Distribution – Rights of Performers – Copyright Registration – Limitations – Infringement of Copyright – Relief and Remedy – Case Law - Semiconductor Chip Protection Act.

UNIT III: Patents

Introduction to Patents - Laws Relating to Patents in India – Patent Requirements – Product Patent and Process Patent - Patent Search - Patent Registration and Granting of Patent - Exclusive Rights – Limitations - Ownership and Transfer — Revocation of Patent – Patent Appellate Board - Infringement of Patent Compulsory Licensing —

Patent Cooperation Treaty – New developments in Patents – Software Protection and Computer related Innovations

UNIT IV: Trademarks

Introduction to Trademarks – Laws Relating to Trademarks – Functions of Trademark Distinction between Trademark and Property Mark – Marks Covered under Trademark Law - Trade Mark Registration – Trade Mark Maintenance – Transfer of rights - Deceptive Similarities Likelihood of Confusion – Dilution of Ownership – Trademarks Claims and Infringement – Remedies – Passing Off Action.

UNIT V: Trade Secrets & Cyber Law and Cyber Crime

Introduction to Trade Secrets – General Principles - Laws Relating to Trade Secrets – Maintaining Trade Secret – Physical Security – Employee Access Limitation – Employee Confidentiality Agreements – Breach of Contract –Law of Unfair Competition – Trade Secret Litigation – Applying State Law. Cyber Law – Information Technology Act 2000 - Protection of Online and Computer Transactions – E-commerce - Data Security – Authentication and Confidentiality - Privacy - Digital Signatures – Certifying Authorities - Cyber Crimes - Prevention and Punishment – Liability of Network Providers.

Course Outcomes:

i. IPR Laws and patents pave the way for innovative ideas which are instrumental for inventions to seek Patents.
ii. Student gets an insight on Copyrights, Patents and Software patents which are instrumental for further advancements.
iii. Apply intellectual property law principles (including copyright, patents, designs and trademarks) to real problems and analyse the social impact of intellectual property law and policy
iv. Analyse ethical and professional issues which arise in the intellectual property law context
v. students should be able to Write reports on project work and critical reflect on their own learning.

References:

i. Intellectual Property Rights (Patents & Cyber Law), Dr. A. Srinivas. Oxford University Press, New Delhi.
ii. Deborah E.Bouchoux: Intellectual Property, Cengage Learning, New Delhi.
iii. PrabhuddhaGanguli: Intellectual Property Rights, Tata Mc-Graw –Hill, New Delhi
iv. Richard Stim: Intellectual Property, Cengage Learning, New Delhi.
v. Kompal Bansal &Parishit Bansal Fundamentals of IPR for Engineers, B. S. Publications (Press).
vi. Cyber Law - Texts & Cases, South-Western's Special Topics Collections.
vii. R.Radha Krishnan, S.Balasubramanian: Intellectual Property Rights, Excel Books. New Delhi.
viii. M.Ashok Kumar and MohdIqbal Ali: Intellectual Property Rights, Serials Pub.

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

III Year - I Semester		L	T	P	C
		2	0	0	0
INDIAN CONSTITIUTION (MC)					

Course Objectives:

i. To Enable the student to understand the importance of constitution
ii. To understand the structure of executive, legislature and judiciary
iii. To understand philosophy of fundamental rights and duties
iv. To understand the autonomous nature of constitutional bodies like Supreme Court and high court controller and auditor general of India and election commission of India.
v. To understand the central and state relation financial and administrative.

UNIT-I

Introduction to Indian Constitution: Constitution meaning of the term, Indian Constitution - Sources and constitutional history, Features - Citizenship, Preamble, Fundamental Rights and Duties, Directive Principles of State Policy.

UNIT-II

Union Government and its Administration Structure of the Indian Union: Federalism, Centre- State relationship, President: Role, power and position, PM and Council of ministers, Cabinet and Central Secretariat, Lok Sabha, Rajya Sabha, The Supreme Court and High Court: Powers and Functions;

UNIT-III

State Government and its Administration Governor - Role and Position - CM and Council of ministers, State Secretariat: Organization, Structure and Functions

UNIT-IV

A.Local Administration - District's Administration Head - Role and Importance, Municipalities - Mayor and role of Elected Representative - CEO of Municipal Corporation Pachayati Raj: Functions PRI: Zila Panchayat, Elected officials and their roles, CEO ZilaPanchayat: Block level Organizational Hierarchy - (Different departments), Village level - Role of Elected and Appointed officials - Importance of grass root democracy

UNIT-V

Election Commission: Election Commission- Role of Chief Election Commissioner and Election Commissionerate State Election Commission:, Functions of Commissions for the welfare of SC/ST/OBC and women.

Course Outcomes:

At the end of the semester/course, the student will be able to have a clear knowledge on the following:

i. Understand historical background of the constitution making and its importance for building a democratic India.
ii. Understand the functioning of three wings of the government ie., executive, legislative and judiciary.
iii. Understand the value of the fundamental rights and duties for becoming good citizen of India.
iv. Analyze the decentralization of power between central, state and local self-government.
v. Apply the knowledge in strengthening of the constitutional institutions like CAG, Election Commission and UPSC for sustaining democracy.
1. Know the sources, features and principles of Indian Constitution.
2. Learn about Union Government, State government and its administration.
3. Get acquainted with Local administration and Pachayati Raj.

4. Be aware of basic concepts and developments of Human Rights.
5. Gain knowledge on roles and functioning of Election Commission

References:

i. Durga Das Basu, Introduction to the Constitution of India, Prentice – Hall of India Pvt. Ltd.. New Delhi
ii. SubashKashyap, Indian Constitution, National Book Trust
iii. J.A. Siwach, Dynamics of Indian Government & Politics
iv. D.C. Gupta, Indian Government and Politics
v. H.M.Sreevai, Constitutional Law of India, 4th edition in 3 volumes (Universal Law Publication)
vi. J.C. Johari, Indian Government andPolitics Hans
vii. J. Raj IndianGovernment and Politics
viii. M.V. Pylee, Indian Constitution Durga Das Basu, Human Rights in Constitutional Law, Prentice – Hall of India Pvt. Ltd.. New Delhi
ix. Noorani, A.G., (South Asia Human Rights Documentation Centre), Challenges to Civil Right), Challenges to Civil Rights Guarantees in India, Oxford University Press 2012

E-resources:

i. nptel.ac.in/courses/109104074/8
ii. nptel.ac.in/courses/109104045/
iii. nptel.ac.in/courses/101104065/
iv. www.hss.iitb.ac.in/en/lecture-details

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

III Year - II Semester		L	T	P	C
		2	0	0	0

IPR & PATENTS (MC)

Objectives:

i. This course is aimed at familiarizing researchers with the nuances of Intellectual Property Rights (IPR) so as to help them integrate the IPR process in their research activities.
ii. IPR internalization process to help the researchers to set targeted objectives in their research project and also to design and implement their research to clearly differentiate their work vis-a-vis the existing state of knowledge/ prior art.
iii. To give the PhD Students "hands- on –training" in literature, including patent search and documentation of research activities that would aid an IPR expert to draft, apply and prosecute IPR applications.
iv. To make the PhD students familiar with basics of IPR and their implications in Research, development and commercialization.
v. Facilitate the students to explore career options in IPR.

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Introduction of IPR - Importance - Concept of Property - Introduction to IPR – International Instruments and IPR - WIPO - TRIPS – WTO -Laws Relating to IPR - IPR Tool Kit - Protection and Regulation - Copyrights and Neighboring Rights – Industrial Property – Patents - Agencies for IPR Registration – Traditional Knowledge –Emerging Areas of IPR - Layout Designs and Integrated Circuits – Use and Misuse of Intellectual Property Rights.

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Introduction to Trademarks – Laws Relating to Trademarks – Functions of Trademark – Distinction between Trademark and Property Mark – Marks Covered under Trademark Law - Trade Mark Registration – Trade Mark Maintenance – Transfer of rights - Deceptive Similarities Likelihood of Confusion - Dilution of Ownership – Trademarks Claims and Infringement – Remedies – Passing Off Action.

UNIT V: Trade Secrets & Cyber Law and Cyber Crime

Introduction to Trade Secrets – General Principles - Laws Relating to Trade Secrets –

Maintaining Trade Secret – Physical Security – Employee Access Limitation – Employee Confidentiality Agreements – Breach of Contract –Law of Unfair Competition – Trade Secret Litigation – Applying State Law. Cyber Law – Information Technology Act 2000 - Protection of Online and Computer Transactions – E-commerce - Data Security – Authentication and Confidentiality - Privacy - Digital Signatures – Certifying Authorities - Cyber Crimes - Prevention and Punishment – Liability of Network Providers.

Outcomes:

i. IPR Laws and patents pave the way for innovative ideas which are instrumental for inventions to seek Patents.

ii. Student gets an insight on Copyrights, Patents and Software patents which are instrumental for further advancements.

iii. Apply intellectual property law principles (including copyright, patents, designs and trademarks) to real problems and analyse the social impact of intellectual property law and policy

iv. Analyse ethical and professional issues which arise in the intellectual property law context

v. students should be able to Write reports on project work and critical reflect on their own learning.

References:

i. Intellectual Property Rights (Patents & Cyber Law), Dr. A. Srinivas. Oxford University Press, New Delhi.

ii. Deborah E.Bouchoux: Intellectual Property, Cengage Learning, New Delhi.

iii. PrabhuddhaGanguli: Intellectual Property Rights, Tata Mc-Graw –Hill, New Delhi.

iv. Richard Stim: Intellectual Property, Cengage Learning, New Delhi.

v. Kompal Bansal &Parishit Bansal Fundamentals of IPR for Engineers, B. S. Publications (Press).

vi. Cyber Law - Texts & Cases, South-Western's Special Topics Collections.

vii. R.Radha Krishnan, S.Balasubramanian: Intellectual Property Rights, Excel Books. New Delhi.

viii. M.Ashok Kumar and MohdIqbal Ali: Intellectual Property Rights, Serials Pub.

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IV Year - I Semester		L	T	P	C
		3	0	0	3
UNIVERSAL HUMAN VALUES-2: UNDERSTANDING HARMONY					

Course Objectives:

i. To Development of a holistic perspective based on self-exploration about themselves(human being), family, society and nature/existence.
ii. To Understanding (or developing clarity) of the harmony in the human being, family, society and nature/existence
iii. Understanding the harmony in the society (society being an extension of family): Resolution, Prosperity, fearlessness (trust) and co-existence as comprehensive Human Goals
iv. To Strengthening of self-reflection.
v. To Development of commitment and courage to act.

Unit-I: Need, Basic Guidelines, Content and Process for Value Education

Purpose and motivation for the course, recapitulation from Universal Human Values-I - Self-Exploration–what is it? - Its content and process; 'Natural Acceptance' and Experiential Validation- as the process for self-exploration - Continuous Happiness and Prosperity- A look at basic Human Aspirations - Right understanding, Relationship and Physical Facility- the basic requirements forfulfilment of aspirations of every human being with their correct priority - Understanding Happiness and Prosperity correctly- A critical appraisal of the current scenario - Method to fulfil the above human aspirations: understanding and living in harmonyat various levels.

Unit-II: Understanding Harmony in the Human Being - Harmony in Myself!

Understanding human being as a co-existence of the sentient 'I' and the material'Body' - Understanding the needs of Self ('I') and 'Body' - happiness and physical facility - Understanding the Body as an instrument of 'I' (I being the doer, seer and enjoyer) - Understanding the characteristics and activities of 'I' and harmony in 'I' - Understanding the harmony of I with the Body: Sanyam and Health; correct appraisal of Physical needs, meaning of Prosperity in detail - Programs to ensure Sanyam and Health.

Unit-III: Understanding Harmony in the Family and Society- Harmony in Human- Human Relationship

Understanding values in human-human relationship; meaning of Justice (nine universal values in relationships) and program for its fulfilment to ensure mutual happiness; Trust and Respect as the foundational values of relationship - Understanding the meaning of Trust; Difference between intention and competence - Understanding the meaning of Respect, Difference between respect and differentiation; the other salient values in relationship - Understanding the harmony in the society (society being an extension of family): Resolution, Prosperity, fearlessness (trust) and co-existence as comprehensive Human Goals - Visualizing a universal harmonious order in society- Undivided Society, Universal Order- from family to world family.

Unit-IV: Understanding Harmony in the Nature and Existence - Whole existence as Coexistence

Understanding the harmony in the Nature - Interconnectedness and mutual fulfillment among the four orders of nature-recyclability and self-regulation in nature - Understanding Existence as Co-existence of mutually interacting units in all-pervasive space - Holistic perception of harmony at all levels of existence.

Unit-V: Implications of the above Holistic Understanding of Harmony on Professional Ethics

Natural acceptance of human values - Definitiveness of Ethical Human Conduct
Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order - Competence in professional ethics: a. Ability to utilize the professional competence for augmenting universal human order b. Ability to identify the scope and characteristics of people friendly and eco-friendly production systems, c. Ability to identify and develop appropriate technologies and management patterns for above production systems. - Case studies of typical holistic technologies, management models and production systems - Strategy for transition from the present state to Universal Human Order: a. At the level of individual: as socially and ecologically responsible engineers, technologistsand managers b. At the level of society: as mutually enriching institutions and organizations.

Course Outcomes:

i. Students are expected to become more aware of themselves, and their surroundings(family, society, nature)
ii. They would become more responsible in life, and in handling problems withsustainable solutions, while keeping human relationships and human nature in mind.
iii. They would have better critical ability.
iv. They would also become sensitive to their commitment towards what they have understood (human values, human relationship and human society).
v. It is hoped that they would be able to apply what they have learnt to their own self in different day-to-day settings in real life, at least a beginning would be made in this direction.

TEXT BOOKS:

i. R R Gaur, R Asthana, G P Bagaria, "A Foundation Course in Human Values andProfessional Ethics", 2nd Revised Edition, Excel Books, New Delhi, 2019. ISBN 978-93- 87034-47-1
ii. R R Gaur, R Asthana, G P Bagaria, "Teachers' Manual for A Foundation Course in Human Values and Professional Ethics", 2nd Revised Edition, Excel Books, New Delhi, 2019. ISBN 978-93-87034-53-2

REFERENCES:

i. Jeevan Vidya: Ek Parichaya, A Nagaraj, Jeevan Vidya Prakashan, Amar kantak, 1999.
ii. A. N. Tripathi, "Human Values", New Age Intl. Publishers, New Delhi, 2004.
iii. The Story of Stuff (Book).
iv. Mohandas Karamchand Gandhi "The Story of My Experiments with Truth"
v. E. FSchumacher. "Small is Beautiful"
vi. Slow is Beautiful –Cecile Andrews
vii. J C Kumarappa "Economy of Permanence"
viii. Pandit Sunderlal "Bharat Mein Angreji Raj"
ix. Dharampal, "Rediscovering India"
x. Mohandas K. Gandhi, "Hind Swaraj or Indian Home Rule"
xi. India Wins Freedom - Maulana Abdul Kalam Azad
xii. Vivekananda - Romain Rolland(English)
xiii. Gandhi - Romain Rolland (English)

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
KAKINADA – 533 003, Andhra Pradesh, India
DEPARTMENT OF MECHANICAL ENGINEERING

COURSE STRUCTURE

For UG – R20

B. TECH - MECHANICAL ENGINEERING

(Applicable for batches admitted from 2020-2021)

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DEPARTMENT OF MECHANICAL ENGINEERING

COURSE STRUCTURE

I Year – I SEMESTER

Sl. No	Course Code	Subjects	L	T	P	Credits
1	BSC-1	Calculus & Differential Equations (M-I)	3	0	0	3
2	BSC-2	Engineering Physics	3	0	0	3
3	ESC-1	Programming for Problem Solving	3	0	0	3
4	HSC-1	Communicative English	3	0	0	3
5	ESC-2	Engineering Drawing	2	0	2	3
6	BSC-L1	Engineering Physics Lab	0	0	3	1.5
7	ESC-L1	Programming for Problem Solving Using C Laboratory	0	0	3	1.5
8	HSC-L1	English Communication Skills Laboratory	0	0	3	1.5
9	MC -1	Environmental Science	2	0	0	0
Total Credits						**19.5**

I Year – II SEMESTER

Sl.No	Course Code	Subjects	L	T	P	Credits
1	BSC-3	Linear Algebra & Numerical Methods (M-II)	3	0	0	3
2	BSC-4	Engineering Chemistry	3	0	0	3
3	ESC-3	Engineering Mechanics	3	0	0	3
4	ESC-4	Basic Electrical & Electronics Engineering	3	0	0	3
5	ESC-5	Thermodynamics	3	0	0	3
6	ESC-L2	Workshop Practice Lab	0	0	3	1.5
7	BSC-L2	Engineering Chemistry Laboratory	0	0	3	1.5
8	ESC-L3	Basic Electrical & Electronics Engineering Lab	0	0	3	1.5
9	MC-2	Constitution of India	2	0	0	0
Total Credits						**19.5**

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II YEAR I SEMESTER

S. No.	Course Code	Course Title	L	T	P	Credits
1	BSC-5	Vector Calculus, Fourier Transforms and PDE(M-III)	3	0	0	3
2	PCC-1	Mechanics of Solids	3	0	0	3
3	PCC-2	Fluid Mechanics & Hydraulic Machines	3	0	0	3
4	PCC-3	Production Technology	3	0	0	3
5	PCC-4	Kinematics of Machinery	3	0	0	3
6	PCC-L1	Computer Aided Engineering Drawing Practice	0	0	3	1.5
7	PCC-L2	Fluid Mechanics & Hydraulic Machines Lab	0	0	3	1.5
8	PCC-L3	Production Technology Lab	0	0	3	1.5
9	SOC-1	Drafting and Modeling Lab	0	0	4	2
10	MC-3	Essence of Indian Traditional Knowledge	2	0	0	0
		Total Credits				**21.5**

II YEAR II SEMESTER

S. No	Course Code	Course Title	L	T	P	Credits
1	ESC-6	Material Science & Metallurgy	3	0	0	3
2	BSC-6	Complex Variables and Statistical Methods	3	0	0	3
3	PCC-5	Dynamics of Machinery	3	0	0	3
4	PCC-6	Thermal Engineering-I	3	0	0	3
5	HSC-2	Industrial Engineering and Management	3	0	0	3
6	ESC-L4	Mechanics of Solids and Metallurgy Lab	0	0	3	1.5
7	PCC-L6	Machine Drawing Practice	0	0	3	1.5
8	PCC-L7	Theory of Machines Lab	0	0	3	1.5
9	SOC-2	Python Programming Lab	1	0	2	2
		Total Credits				**21.5**
Honors/Minor courses			**4**	**0**	**0**	**4**

* At the end of II Year II Semester, students must complete summer internship spanning between 1 to 2 months (Minimum of 6 weeks), @ Industries/ Higher Learning Institutions/ APSSDC.

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III B.TECH I SEMESTER

S No	Code	Course Title	Hours			Credits
			L	T	P	
1	PCC-7	Thermal Engineering-II	3	0	0	3
2	PCC-8	Design of Machine Members-I	3	0	0	3
3	PCC-9	Machining, Machine Tools & Metrology	3	0	0	3
4	OE-1	1. Sustainable Energy Technologies 2. Operations Research 3. Nano Technology 4. Thermal Management of Electronic systems	3	0	0	3
5	PE-1	1. Finite Element Methods 2. Industrial Robotics 3. Advanced Materials 4. Renewable Energy Sources 5. Mechanics of Composites 6. MOOCs (NPTEL/ Swayam) Course (12 Week duration)	3	0	0	3
6	PCC-L6	Machine Tools Lab	0	0	3	1.5
7	PCC-L7	Thermal Engineering Lab	0	0	3	1.5
8	SOC-3	Advanced Communication Skills Lab	1	0	2	2
9	MC – 4	Professional Ethics and Human Values	2	0	0	0
Evaluation of Summer Internship which is completed at the end of II B.Tech II Semester						1.5
			Total credits			**21.5**
Honors/Minor courses			**4**	**0**	**0**	**4**

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III B.TECH II SEMESTER

S.No	Code	Course Title	Hours			Credits
			L	T	P	
1	PCC-10	Heat Transfer	3	0	0	3
2	PCC-11	Design of Machine Members-II	3	0	0	3
3	PCC-12	Introduction to Artificial Intelligence and Machine Learning	3	0	0	3
4	PE-2	1.Automobile Engineering 2.Smart Manufacturing 3.Advanced Mechanics of Solids 4.Statistical Quality Control 5.Industrial Hydraulics and Pneumatics 6.MOOCs (NPTEL/ Swayam) Course (12 Week duration)	3	0	0	3
5	OE-2	1.Industrial Robotics 2.Essentials of Mechanical Engineering 3.Advanced Materials 4.Introduction to Automobile Engineering	3	0	0	3
6	PCC-L8	Heat Transfer Lab	0	0	3	1.5
7	PCC-L9	CAE&CAM Lab	0	0	3	1.5
8	PCC-L10	Measurements & Metrology Lab	0	0	3	1.5
9	SOC-4	Artificial Intelligence and Machine Learning Lab	0	0	4	2
10	MC - 5	Research Methodology and IPR	2	0	0	0
			Total credits			**21.5**
		Honors/Minor courses	**4**	0	0	**4**

* At the end of III Year II Semester, students shall complete summer internship spanning between 1 to 2 months at Industries/ Higher Learning Institutions/ APSSDC.

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IV B.TECH I SEMESTER

S.No	Code	Course Title	Hours			Credits
			L	T	P	
1	PE-3	1. Mechanical Vibrations 2. Operations Research 3. Unconventional Machining Processes 4. Computational Fluid Dynamics 5. Gas Dynamics and Jet Propulsion 6. MOOCs (NPTEL/Swayam) Course (12 Week duration)	3	0	0	3
2	PE-4	1. Automation in Manufacturing 2. Power Plant Engineering 3. Big Data Analytics 4. Production Planning and Control 5.Condition Monitoring 6.MOOCs (NPTEL/Swayam) Course (12 Week duration)	3	0	0	3
3	PE-5	1. Advanced Manufacturing Processes 2. Mechatronics 3. Refrigeration & Air-Conditioning 4. Additive Manufacturing 5. Non Destructive Evaluation 6. MOOCs (NPTEL/Swayam) Course (12 Week duration)	3	0	0	3
4	OE-3	1. Additive Manufacturing 2. Mechatronics 3. Finite Element Methods 4. Introduction to Artificial Intelligence &Machine Learning	3	0	0	3
5	OE-4	1. Optimization Techniques 2. Smart Manufacturing 3. Safety Engineering 4. Operations Management	3	0	0	3
6	HSC-3	Universal Human Values: Understanding Harmony	3	0	0	3
7	SOC-5	Mechatronics Lab	0	0	4	2
Evaluation of Summer Internship which is completed at the end of III B.Tech II Semester						3
			Total credits			**23**
		Honors/Minor courses	4	0	0	4

IV B.TECH II SEMESTER

S No.	Category	Code	Course Title	Hours per week			Credits
				L	T	P	
1	Major Project	PROJ	Project work*	0	4	16	12
				Total credits			**12**

*Students can complete Project work @ Industries/ Higher Learning Institutions/ APSSDC.

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA
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DEPARTMENT OF MECHANICAL ENGINEERING

I Year - I Semester		L	T	P	C
		2	0	0	0
ENVIRONMENTAL SCIENCE					

Learning Objectives:

The objectives of the course are to impart:

- Overall understanding of the natural resources.
- Basic understanding of the ecosystem and its diversity.
- Acquaintance on various environmental challenges induced due to unplannedanthropogenicactivities.
- An understanding of the environmental impact of developmental activities.
- Awareness on the social issues, environmental legislation and global treaties.

UNIT-I:

Multidisciplinary nature of Environmental Studies: Definition, Scope and Importance – Sustainability: Stockholm and Rio Summit–Global Environmental Challenges: Global warming and climate change, acid rains, ozone layer depletion, population growth and explosion, effects;. Role of information technology in environment and human health.

Ecosystems: Concept of an ecosystem. - Structure and function of an ecosystem; Producers, consumers and decomposers. - Energy flow in the ecosystem - Ecological succession. - Food chains, food webs and ecological pyramids; Introduction, types, characteristic features, structure and function of Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems.

UNIT-II:

Natural Resources: Natural resources and associated problems.

Forest resources: Use and over – exploitation, deforestation – Timber extraction – Mining, dams andother effects on forest and tribal people.

Water resources: Use and over utilization of surface and ground water – Floods, drought, conflicts over water, dams – benefits and problems.

Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources. Food resources: World food problems, changes caused by non-agriculture activities-effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity.

Energy resources: Growing energy needs, renewable and non-renewable energy sources use of alternate energy sources.

Land resources: Land as a resource, land degradation, Wasteland reclamation, man induced landslides, soil erosion and desertification; Role of an individual in conservation of natural resources; Equitable use of resources for sustainable lifestyles.

UNIT-III:

Biodiversity and its conservation: Definition: genetic, species and ecosystem diversity-classification - Value of biodiversity: consumptive use, productive use, social-Biodiversity at national and local levels. India as a mega-diversity nation - Hot-sports of biodiversity - Threats to biodiversity: habitat loss, man- wildlife conflicts. - Endangered and endemic species of India – Conservation of biodiversity: conservation of biodiversity.

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UNIT – IV Environmental Pollution: Definition, Cause, effects and control measures of Air pollution, Water pollution, Soil pollution, Noise pollution, Nuclear hazards. Role of an individual in prevention of pollution. - Pollution case studies, Sustainable Life Studies. Impact of Fire Crackers on Men and his well being.
Solid Waste Management: Sources, Classification, effects and control measures of urban and industrial solid wastes. Consumerism and waste products, Biomedical, Hazardous and e – waste management.

UNIT – V Social Issues and the Environment: Urban problems related to energy -Water conservation, rain water harvesting - Resettlement and rehabilitation of people; its problems and concerns.

Environmental ethics: Issues and possible solutions. Environmental Protection Act -Air (Prevention and Control of Pollution) Act. –Water (Prevention and control of Pollution) Act -Wildlife Protection Act - Forest Conservation Act-Issues involved in enforcement of environmental legislation. -Public awareness.**Environmental Management**: Impact Assessment and its significance various stages of EIA, preparation of EMP and EIS, Environmental audit. Ecotourism, Green Campus – Green business and Green politics. The student should Visit an Industry / Ecosystem and submit a report individually on any issues related toEnvironmental Studies course and make a power point presentation.

Text Books:

1. Environmental Studies, K. V. S. G. Murali Krishna, VGS Publishers, Vijayawada
2. Environmental Studies, R. Rajagopalan, 2nd Edition, 2011, Oxford University Press.
3. Environmental Studies, P. N. Palanisamy, P. Manikandan, A. Geetha, and K. Manjula Rani; PearsonEducation, Chennai

Reference:

1. Text Book of Environmental Studies, Deeshita Dave & P. UdayaBhaskar, Cengage Learning.
2. A Textbook of Environmental Studies, Shaashi Chawla, TMH, New Delhi
3. Environmental Studies, Benny Joseph, Tata McGraw Hill Co, New Delhi
4. Perspectives in Environment Studies, Anubha Kaushik, C P Kaushik, New Age InternationalPublishers, 2014

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I Year - II Semester		L	T	P	C
		2	0	0	0

CONSTITUTION OF INDIA

Course Objectives:

- To Enable the student to understand the importance of constitution
- To understand the structure of executive, legislature and judiciary
- To understand philosophy of fundamental rights and duties
- To understand the autonomous nature of constitutional bodies like Supreme Court and high courtcontroller and auditor general of India and election commission of India.
- To understand the central and state relation financial and administrative.

UNIT-I

Introduction to Indian Constitution: Constitution meaning of the term, Indian Constitution - Sources and constitutional history, Features - Citizenship, Preamble, Fundamental Rights and Duties, Directive Principles of State Policy.

Learning outcomes:

After completion of this unit student will

- Understand the concept of Indian constitution
- Apply the knowledge on directive principle of state policy
- Analyze the History, features of Indian constitution
- Evaluate Preamble Fundamental Rights and Duties

UNIT-II

Union Government and its Administration Structure of the Indian Union: Federalism, Centre- State relationship, President: Role, power and position, PM and Council of ministers, Cabinet and CentralSecretariat, LokSabha, RajyaSabha, The Supreme Court and High Court: Powers and Functions; **Learning outcomes:**-After completion of this unit student will

- Understand the structure of Indian government
- Differentiate between the state and central government
- Explain the role of President and Prime Minister
- Know the Structure of supreme court and High court

UNIT-III

State Government and its Administration Governor - Role and Position - CM and Councilof ministers,State Secretariat: Organisation, Structure and Functions

Learning outcomes:-After completion of this unit student will

- Understand the structure of state government
- Analyze the role Governor and Chief Minister
- Explain the role of state Secretariat
- Differentiate between structure and functions of state secretariat

UNIT-IV

A.Local Administration - District's Administration Head - Role and Importance, Municipalities - Mayor and role of Elected Representative - CEO of Municipal Corporation PachayatiRaj: Functions PRI: ZilaPanchayat, Elected officials and their roles, CEO ZilaPanchayat: Block level Organizational Hierarchy - (Different departments), Village level - Role of Elected and Appointed officials - Importance of grass root democracy

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Learning outcomes:-After completion of this unit student will

- Understand the local Administration
- Compare and contrast district administration role and importance
- Analyze the role of Myer and elected representatives of Municipalities
- Evaluate Zillapanchayat block level organisation

UNIT-V

Election Commission: Election Commission- Role of Chief Election Commissioner and Election Commissionerate State Election Commission:, Functions of Commissions for the welfare of SC/ST/OBC and women

Learning outcomes:-After completion of this unit student will

- Know the role of Election Commission apply knowledge
- Contrast and compare the role of Chief Election commissioner and Commissiononerate
- Analyze role of state election commission
- Evaluate various commissions of viz SC/ST/OBC and women

References:

1. Durga Das Basu, Introduction to the Constitution of India, Prentice – Hall of India Pvt.Ltd.. NewDelhi
2. SubashKashyap, Indian Constitution, National Book Trust
3. J.A. Siwach, Dynamics of Indian Government & Politics
4. D.C. Gupta, Indian Government and Politics
5. H.M.Sreevai, Constitutional Law of India, 4th edition in 3 volumes (Universal Law Publication)
6. J.C. Johari, Indian Government andPolitics Hans
7. J. Raj IndianGovernment and Politics
8. M.V. Pylee, Indian Constitution Durga Das Basu, Human Rights in Constitutional Law,Prentice –Hall of India Pvt. Ltd.. New Delhi
9. Noorani, A.G., (South Asia Human Rights Documentation Centre), Challenges to CivilRight),Challenges to Civil Rights Guarantees in India, Oxford University Press 2012 **E-resources**:

1. nptel.ac.in/courses/109104074/8
2. nptel.ac.in/courses/109104045/
3. nptel.ac.in/courses/101104065/
4. www.hss.iitb.ac.in/en/lecture-details
5. www.iitb.ac.in/en/event/2nd-lecture-institute-lecture-series-indian-constitution

Course Outcomes:

At the end of the semester/course, the student will be able to have a clear knowledge on thefollowing:

- Understand historical background of the constitution making and its importance forbuilding ademocratic India.
- Understand the functioning of three wings of the government ie., executive,legislative andjudiciary.
- Understand the value of the fundamental rights and duties for becoming good citizen of India.
- Analyze the decentralization of power between central, state and local self-government.
- Apply the knowledge in strengthening of the constitutional institutions like CAG,ElectionCommission and UPSC for sustaining democracy.

1. Know the sources, features and principles of Indian Constitution.
2. Learn about Union Government, State government and its administration.
3. Get acquainted with Local administration and Pachayati Raj.
4. Be aware of basic concepts and developments of Human Rights.

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5. Gain knowledge on roles and functioning of Election Commission.

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DEPARTMENT OF MECHANICAL ENGINEERING

II Year - I Semester		L	T	P	C
		2	0	0	0

ESSENCE OF INDIAN TRADITIONAL KNOWLEDGE

Course Objectives:

To facilitate the students with the concepts of Indian traditional knowledge and to make them understand the Importance of roots of knowledge system

- The course aim of the importing basic principle of third process reasoning and inference sustainability is at the course of Indian traditional knowledge system
- To understand the legal framework and traditional knowledge and biological diversity act 2002 and geographical indication act2003
- The courses focus on traditional knowledge and intellectual property mechanism of traditional knowledge and protection
- To know the student traditional knowledge in different sector

Course Outcomes:

After completion of the course, students will be able to:

- Understand the concept of Traditional knowledge and itsimportance
- Know the need and importance of protecting traditionalknowledge
- Know the various enactments related to the protection of traditionalknowledge
- Understand the concepts of Intellectual property to protect the traditionalknowledge

UNIT I

Introduction to traditional knowledge: Define traditional knowledge, nature and characteristics, scope and importance, kinds of traditional knowledge, the physical and social contexts in which traditional knowledge develop, the historical impact of social change on traditional knowledge systems. Indigenous Knowledge (IK), characteristics, traditional knowledge vis-à-vis indigenous knowledge, traditional knowledge Vs western knowledge traditional knowledge vis-à-vis formal knowledge

UNIT II

Protection of traditional knowledge: the need for protecting traditional knowledge Significance of TK Protection, value of TK in global economy, Role of Government to harness TK.

UNIT III

Legal framework and TK: A: The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, Plant Varieties Protection and Farmers Rights Act, 2001 (PPVFR Act);B:The Biological Diversity Act 2002 and Rules 2004, the protection of traditional knowledge bill, 2016.Geographical indications act 2003.

UNIT IV

Traditional knowledge and intellectual property: Systems of traditional knowledge protection. Legal concepts for the protection of traditional knowledge, Certain non IPR mechanisms of traditional knowledge protection, Patents and traditional knowledge, Strategies to increase protection of traditional knowledge, global legal FORA for increasing protection of Indian Traditional Knowledge.

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UNIT V

Traditional knowledge in different sectors: Traditional knowledge and engineering, Traditional medicine system, TK and biotechnology, TK in agriculture, Traditional societies depend on it for their food and healthcare needs, Importance of conservation and sustainable development of environment, Management of biodiversity, Food security of the country and protection of TK.

REFERENCE BOOKS:

1. Traditional Knowledge System in India, by Amit Jha,2009.
2. Traditional Knowledge System and Technology in India by Basanta Kumar Mohanta and Vipin Kumar Singh, PratibhaPrakashan2012.
3. Traditional Knowledge System in India by Amit Jha Atlantic publishers,2002
4. "Knowledge Traditions and Practices of India" Kapil Kapoor, MichelDanino

e-Resources:

1) https://www.youtube.com/watch?v=LZP1StpYEPM
2) http://nptel.ac.in/courses/121106003/

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III Year - I Semester		L	T	P	C
		2	0	0	0

PROFESSIONAL ETHICS AND HUMAN VALUES

Course objective:

1) To understand the concepts of human values.
2) To gain knowledge about the principles of engineering ethics.
3) To interpret engineering as social experimentation.
4) To understand engineers' responsibility for safety and risk.
5) To gain knowledge about the engineers' rights and responsibilities.

UNIT– I:

HUMAN VALUES: Morals, Values and Ethics – Integrity – Work Ethics – Service Learning – Civic Virtue – Respect for others – Living Peacefully – Caring – Sharing –Honesty –Courage – Value time – Co-operation – Commitment – Empathy –Self-confidence – Spirituality- Character.

UNIT– II:

ENGINEERING ETHICS:

The History of Ethics-Purposes for Engineering Ethics-Engineering Ethics-Consensus and Controversy –Professional and Professionalism –Professional Roles to be played by an Engineer – Self Interest, Customs and Religion-Uses of Ethical Theories-Professional Ethics-Types of Inquiry – Engineering and Ethics-Kohlberg's Theory – Gilligan's Argument –Heinz's Dilemma.

UNIT– III:

ENGINEERING AS SOCIAL EXPERIMENTATION:

Comparison with Standard Experiments – Knowledge gained –Conscientiousness – Relevant Information – Learning from the Past – Engineers as Managers, Consultants, and Leaders – Accountability – Role of Codes – Codes and Experimental Nature of Engineering.

UNIT– IV:

ENGINEERS' RESPONSIBILITY FOR SAFETY AND RISK:

Safety and Risk, Concept of Safety – Types of Risks – Voluntary v/s Involuntary Risk- Short term v/s Long term Consequences- Expected Probability- Reversible Effects- Threshold Levels for Risk- Delayed v/s Immediate Risk- Safety and the Engineer – Designing for Safety – Risk-Benefit Analysis-Accidents.

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UNIT– V:
ENGINEERS' RESPONSIBILITIES AND RIGHTS:
Collegiality-Techniques for Achieving Collegiality –Two Senses of Loyalty-obligations of Loyalty-misguided Loyalty – professionalism and Loyalty-Professional Rights –Professional Responsibilities – confidential and proprietary information-Conflict of Interest-solving conflict problems – Self-interest, Customs and Religion- Ethical egoism-Collective bargaining-Confidentiality-Acceptance of Bribes/Gifts-when is a Gift and a Bribe-examples of Gifts v/s Bribes-problem solving-interests in other companies-Occupational Crimes-industrial espionage-price fixing-endangering lives-Whistle Blowing-types of whistle blowing-when should it be attempted-preventing whistle blowing.

TEXT BOOKS:
1) Engineering Ethics and Human Values by M.Govindarajan, S.Natarajan and V.S.SenthilKumar-PHI Learning Pvt. Ltd-2009.
2) Professional Ethics and Morals by Prof.A.R.Aryasri, Dharanikota, Suyodhana-Maruthi Publications.

REFERENCE BOOKS:
1) Professional Ethics and Human Values by A.Alavudeen, R.Kalil Rahman and M.Jayakumaran-Laxmi Publications.
2) Professional Ethics and Human Values by Prof. D. R. Kiran, TMH.
3) Indian Culture, Values and Professional Ethics by P.S.R. Murthy-BS Publication.
4) Ethics in Engineering by Mike W. Martin and Roland Schinzinger– Tata McGraw-Hill – 2003.
5) Engineering Ethics by Harris, Pritchard and Robins, CENGAGE Learning, Indian Edition, 2009.

Course outcomes: At the end of the course, student will be able to
CO1: Judge the concepts of human values.
CO2: Justify knowledge about the principles of engineering ethics.
CO3: Interpret engineering as social experimentation.
CO4: Realize engineers' responsibility for safety and risk.
CO5: Learn about the engineers' rights and responsibilities.

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Research Methodology and IPR

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DEPARTMENT OF MECHANICAL ENGINEERING

Course objectives:

1) To understand the objectives and characteristics of a research problem.
2) To analyze research related information and to follow research ethics
3) To understand the types of intellectual property rights.
4) To learn about the scope of patent rights.
5) To understand the new developments in IPR.

UNIT - I

Research problem: Meaning of research problem, Sources of research problem, Criteria Characteristics of a good research problem, Errors in selecting a research problem, Scope and objectives of research problem. Approaches of investigation of solutions for research problem, data collection, analysis, interpretation, Necessary instrumentations

UNIT - II

Literature study: Effective literature studies approaches, analysis Plagiarism, Research ethics, Technical writing: Effective technical writing, how to write report, Paper Developing a Research Proposal, Format of research proposal, a presentation and assessment by a review committee

UNIT - III

Nature of Intellectual Property: Patents, Designs, Trade and Copyright.
Process of Patenting and Development: technological research, innovation, patenting, development. International Scenario: International cooperation on Intellectual Property. Procedure for grants of patents, Patenting under PCT.

UNIT - IV

Patent Rights: Scope of Patent Rights. Licensing and transfer of technology. Patent information and databases. Geographical Indications.

UNIT - V

New Developments in IPR: Administration of Patent System. New developments in IPR; IPR of Biological Systems, Computer Software etc, Traditional knowledge Case Studies, IPR and IITs.

TEXT BOOKS:

1) Stuart Melville and Wayne Goddard, "Research methodology: an introduction for science & engineering students'"
2) Wayne Goddard and Stuart Melville, "Research Methodology: An Introduction"
3) Ranjit Kumar, 2nd Edition, "Research Methodology: A Step by Step Guide for beginners"

REFERENCES:

1) Halbert, "Resisting Intellectual Property", Taylor & Francis Ltd ,2007.
2) Mayall, "Industrial Design", McGraw Hill, 1992.
3) Niebel, "Product Design", McGraw Hill, 1974.
4) Asimov, "Introduction to Design", Prentice Hall, 1962.

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5) Robert P. Merges, Peter S. Menell, Mark A. Lemley, "Intellectual Property in New Technological Age", 2016.
6) T. Ramappa, "Intellectual Property Rights Under WTO", S. Chand, 2008

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

CO1: Understand objectives and characteristics of a research problem
CO2: Analyze research related information and to follow research ethics.
CO3: Understand the types of intellectual property rights.
CO4: Learn about the scope of IPR.
CO5:Understand the new developments in IPR.

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KAKINADA – 533 003, Andhra Pradesh, India

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COURSE STRUCTURE AND SYLLABUS

For UG – R20

B. TECH - ELECTRONICS AND COMMUNICATION ENGINEERING

(Applicable for batches admitted from 2020-2021)

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KAKINADA – 533 003, Andhra Pradesh, India

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

COURSE STRUCTURE

I Year –I SEMESTER

S. No.	Category	Subjects	L	T	P	Credits
1	HS	Communicative English	3	0	0	3
2	BS	Mathematics –I(Calculus)	3	0	0	3
3	BS	Applied Chemistry	3	0	0	3
4	ES	Programming for Problem Solving Using C	3	0	0	3
5	BS	Engineering Drawing	2	0	2	3
6	LC	English Communication Skills Laboratory	0	0	3	1.5
7	LC	Applied Chemistry Lab	0	0	3	1.5
8	LC	Programming for Problem Solving Using C Lab	0	0	3	1.5
					Total Credits	**19.5**

I Year – II SEMESTER

S. No	Category	Subjects	L	T	P	Credits
1	BS	Mathematics –II (Linear Algebra and Numerical Methods)	3	0	0	3
2	BS	Applied Physics	3	0	0	3
3	ES	Object Oriented Programming through Java	2	0	2	3
4	ES	Network Analysis	3	0	0	3
5	ES	Basic Electrical Engineering	3	0	0	3
6	LC	Electronic workshop Lab	0	0	3	1.5
7	LC	Basic Electrical Engineering Lab	0	0	3	1.5
8	LC	Applied Physics Lab	0	0	3	1.5
9	MC	Environmental Science	3	0	0	0.0
					Total Credits	**19.5**

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II Year –I Semester

S. No	Category	Name of the Subject	L	T	P	Credits
1	PC	Electronic Devices and Circuits	3	1	0	3
2	PC	Switching Theory and Logic Design	3	1	0	3
3	PC	Signals and Systems	3	1	0	3
4	BS	Mathematics-III (Transforms and Vector Calculus)	3	1	0	3
5	BS	Random Variables and Stochastic Processes	3	1	0	3
6	LC	OOPS through Java Lab	0	0	2	1.5
7	LC	Electronic Devices and Circuits -Lab	0	0	2	1.5
8	LC	Switching Theory and Logic Design–Lab	0	0	2	1.5
9	SC	Python Programming	0	0	4	2
					Total Credits	**21.5**

II Year – II Semester

S. No	Category	Name of the subject	L	T	P	Credits
1	PC	Electronic Circuit Analysis	3	1	0	3
2	PC	Digital IC Design	3	1	0	3
3	PC	Analog Communications	3	0	0	3
4	ES	Linear control Systems	3	1	0	3
5	HS	Management and Organizational Behavior	3	0	0	3
6	LC	Electronic Circuit Analysis Lab	0	0	3	1.5
7	LC	Analog Communications Lab	0	0	3	1.5
8	LC	Digital IC Design Lab	0	0	3	1.5
9	SC	Soft Skills	0	0	4	2
10	MC	Constitution of India	3	0	0	0
					Total Credits	**21.5**
Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)						4

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III Year - I Semester

S. No	Category	Name of the subject	L	T	P	Credits
1	PC	Analog ICs and Applications	3	0	0	3
2	PC	Electromagnetic Waves and Transmission Lines	3	0	0	3
3	PC	Digital Communications	3	0	0	3
4	OE1	Open Elective Course/Job oriented elective-1	2	0	2	3
5	PE1	Professional Elective courses -1	3	0	0	3
6	LC	Analog ICs and Applications LAB	0	0	3	1.5
7	LC	Digital Communications Lab	0	0	3	1.5
8	SC	Data Structures using Java Lab	0	0	4	2
9	MC	Indian Traditional Knowledge	2	0	0	0
	Summer Internship 2 Months (Mandatory) after second year (to be evaluated during V semester		0	0	0	1.5
		Total credits				**21.5**
	Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)					**4**

PE1:	**OE1:**
1. Antenna and Wave Propagation 2.Electronic Measurements and Instrumentation 3.Computer Architecture & Organization	Candidate should select the subject from list of subjects offered by other departments

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III Year –II Semester

S. No	Category	Name of the subject	L	T	P	Credits
1	PC	Microprocessor and Microcontrollers	3	1	0	3
2	PC	VLSI Design	3	0	0	3
3	PC	Digital Signal Processing	3	0	0	3
4	PE2	Professional Elective courses - 2	3	0	0	3
5	OE 2	Open Elective Course/Job oriented elective -2	2	0	2	3
6	LC	Microprocessor and Microcontrollers - Lab	0	0	3	1.5
7	LC	VLSI Design Lab	0	0	3	1.5
8	LC	Digital Signal Processing Lab	0	0	3	1.5
9	SC	ARM based/ Aurdino based Programming	1	0	2	2
10	MC	Research Methodology	2	0	0	0
		Total credits				**21.5**
	Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)					**4**

Industrial/Research Internship (Mandatory) 2 Months during summer vacation

PE2:	**OE2:**
1. Microwave Engineering 2. Mobile & Cellular Communication 3. Embedded Systems 4. CMOS Analog IC Design	Candidate should select the subject from list of subjects offered by other departments

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
IV Year –I Semester

S. No	Category	Name of the subject	L	T	P	Credits
1	PE	Professional Elective courses -3	3	0	0	3
2	PE	Professional Elective courses -4	3	0	0	3
3	PE	Professional Elective courses -5	3	0	0	3
4	OE	Open Elective Courses/ Job oriented elective -3	2	0	2	3
5	OE	Open Elective Courses/ Job oriented elective -4	2	0	2	3
6	HS	***Humanities and Social Science Elective**	3	0	0	3
7	SC	**Designer tools (HFSS,** Microwave Studio CST. Cadence Virtuoso. Synopsys, Mentor Graphics, Xilinx.)	1	0	2	2
Industrial/Research Internship 2 Months (Mandatory) afterthird year (to be evaluated during VII semester			0	0	0	3
					Total credits	**23**
	Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)					**4**

PE 3: 1. Optical Communication 2. Digital Image Processing 3. Low Power VLSI Design	PE5: 1. Radar engineering 2.Pattern recognition & Machine Learning 3.Internet of Things
PE4: 1.Satellite Communications 2.Soft Computing Techniques 3.Digital IC Design using CMOS	

IV Year – II Semester

S. No.	Category	Code	Course Title	Hours per week			Credits
1	Major Project	PROJ	Project work, seminar and internship inindustry	-	-	-	12
INTERNSHIP (6 MONTHS)							
						Total credits	**12**

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY: KAKINADA
KAKINADA – 533 003, Andhra Pradesh, India
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

I Year - II Semester		L	T	P	C
		3	0	0	0
ENVIRONMENTAL SCIENCE					

Course Objective:

Engineering drawing being the principal method of communication for engineers, the objective is to introduce the students, the techniques of constructing the various types of polygons, curves and scales. The objective is also to visualize and represent the 3D objects in 2D planes with proper dimensioning, scaling etc.

Unit I

Objective: To introduce the students to use drawing instruments and to draw polygons, Engg. Curves.
Polygons: Constructing regular polygons by general methods, inscribing and describing polygons on circles.
Curves: Parabola, Ellipse and Hyperbola by general and special methods, cycloids, involutes, tangents &normals for the curves.
Scales: Plain scales, diagonal scales and vernier scales

Unit II

Objective: To introduce the students to use orthographic projections, projections of points & simple lines. To make the students draw the projections of the lines inclined to both the planes.
Orthographic Projections: Reference plane, importance of reference lines, projections of points in various quadrants, projections of lines, line parallel to both the planes, line parallel to one plane and inclined to other plane.
Projections of straight lines inclined to both the planes, determination of true lengths, angle of inclination and traces.

Unit III

Objective: The objective is to make the students draw the projections of the plane inclined toboth the planes.
Projections of planes: regular planes perpendicular/parallel to one reference plane and inclined to the other reference plane; inclined to both the reference planes.

Unit IV

Objective: The objective is to make the students draw the projections of the various types of solids in different positions inclined to one of the planes.
Projections of Solids – Prisms, Pyramids, Cones and Cylinders with the axis inclined to both the planes.

Unit V

Objective: The objective is to represent the object in 3D view through isometric views. The student will be able to represent and convert the isometric view to orthographic view and vice versa.

Conversion of isometric views to orthographic views; Conversion of orthographic views to isometric views. Computer Aided Design, Drawing practice using Auto CAD, Creating 2D&3D drawings of objects using Auto CAD

Note: In the End Examination there will be no question from CAD.

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

TEXT BOOKS:

1. Engineering Drawing by N.D. Butt, Chariot Publications
2. Engineering Drawing by Agarwal & Agarwal, Tata McGraw Hill Publishers

REFERENCE BOOKS:

1. Engineering Drawing by K.L.Narayana& P. Kannaiah, Scitech Publishers
2. Engineering Graphics for Degree by K.C. John, PHI Publishers
3. Engineering Graphics by PI Varghese, McGrawHill Publishers
4. Engineering Drawing + AutoCad – K Venugopal, V. Prabhu Raja, New Age

Course Outcome: The student will learn how to visualize 2D & 3D objects.

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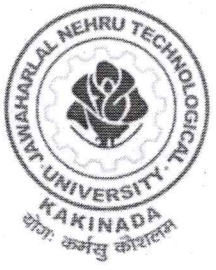
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE STRUCTURE AND SYLLABUS

For UG –R20

B. TECH - COMPUTER SCIENCE & ENGINEERING

(Applicable for batches admitted from 2020-2021)



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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE STRUCTURE

I Year – I SEMESTER						
S. No	**Course Code**	**Courses**	**L**	**T**	**P**	**Credits**
1	HS	Communicative English	3	0	0	3
2	BS	Mathematics - I (Calculus And Differential Equations)	3	0	0	3
3	BS	Applied Physics	3	0	0	3
4	ES	Programming for Problem Solving using C	3	0	0	3
5	ES	Computer Engineering Workshop	1	0	4	3
6	HS	English Communication Skills Laboratory	0	0	3	1.5
7	BS	Applied Physics Lab	0	0	3	1.5
8	ES	Programming for Problem Solving using C Lab	0	0	3	1.5
Total Credits			**19.5**			

I Year – II SEMESTER						
S. No	**Course Code**	**Courses**	**L**	**T**	**P**	**Credits**
1	BS	Mathematics – II (Linear Algebra And Numerical Methods)	3	0	0	3
2	BS	Applied Chemistry	3	0	0	3
3	ES	Computer Organization	3	0	0	3
4	ES	Python Programming	3	0	0	3
5	ES	Data Structures	3	0	0	3
6	BS	Applied Chemistry Lab	0	0	3	1.5
7	ES	Python Programming Lab	0	0	3	1.5
8	ES	Data Structures Lab	0	0	3	1.5
9	MC	Environment Science	2	0	0	0
Total Credits			**19.5**			

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

II Year – I SEMESTER						
S. No	**Course Code**	**Courses**	**L**	**T**	**P**	**Credits**
1	BS	Mathematics III	3	0	0	3
2	CS	Object Oriented Programming through C++	3	0	0	3
3	CS	Operating Systems	3	0	0	3
4	CS	Software Engineering	3	0	0	3
5	CS	Mathematical Foundations of Computer Science	3	0	0	3
6	CS	Object Oriented Programming through C++ Lab	0	0	3	1.5
7	CS	Operating Systems Lab	0	0	3	1.5
8	CS	Software Engineering Lab	0	0	3	1.5
9	SO	**Skill oriented Course - I** Applications of Python-NumPy **OR** 2) Web Application Development Using Full Stack -Frontend Development – Module-I	0	0	4	2
10	MC	Constitution of India	2	0	0	0
Total Credits			**21.5**			

II Year – II SEMESTER						
S. No	**Course Code**	**Courses**	**L**	**T**	**P**	**Credits**
1	BS	Probability and Statistics	3	0	0	3
2	CS	Database Management Systems	3	0	0	3
3	CS	Formal Languages and Automata Theory	3	0	0	3
4	ES	Java Programming	3	0	0	3
5	HS	Managerial Economics and Financial Accountancy	3	0	0	3
6	CS	Database Management Systems Lab	0	0	2	1
7	CS	R Programming Lab	0	1	2	2
8	ES	Java Programming Lab	0	0	3	1.5
9	SO	**Skill Oriented Course - II** Applications of Python-Pandas **OR** 2) Web Application Development Using Full Stack -Frontend Development –Module-II	0	0	4	2
Total Credits			**21.5**			
10	Minor	Operating Systems[$]	3	0	2	3+1
11	Honors	Any course from the Pool, as per the opted track	4	0	0	4

$- Integrated Course

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

III B. Tech – I Semester						
S.No	Course Code	Courses	Hours per week			Credits
			L	T	P	C
1	PC	Computer Networks	3	0	0	3
2	PC	Design and Analysis of Algorithms	3	0	0	3
3	PC	Data Warehousing and Data Mining	3	0	0	3
4	Open Elective / Job Oriented	**Open Elective-I** Open Electives offered by other departments/ Optimization in Operations Research (Job oriented course)	3	0	0	3
5	PE	**Professional Elective-I** Artificial Intelligence Software Project Management Distributed Systems Advanced Unix Programming	3	0	0	3
6	PC	Data Warehousing and Data Mining Lab	0	0	3	1.5
7	PC	Computer Networks Lab	0	0	3	1.5
8	SO	**Skill Oriented Course – III** 1. Animation course: Animation Design **OR** 2.Continuous Integration and Continuous Delivery using DevOps	0	0	4	2
9	MC	Employability Skills-I	2	0	0	0
10	PR	**Summer Internship 2 Months (Mandatory) after second year (to be evaluated during V semester**	0	0	0	1.5
Total credits						21.5
11	Minor	Database Management Systems$	3	0	2	3+1
12	Honors	Any course from the Pool, as per the opted track	4	0	0	4

$- Integrated Course

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

III B. Tech – II Semester						
S.No	**Course Code**	**Courses**	**Hours per week**			**Credits**
			L	**T**	**P**	**C**
1	PC	Machine Learning	**3**	**0**	**0**	**3**
2	PC	Compiler Design	**3**	**0**	**0**	**3**
3	PC	Cryptography and Network Security	**3**	**0**	**0**	**3**
4	PE	**Professional Elective-II** 1.Mobile Computing 2.Big Data Analytics 3.Object Oriented Analysis and Design 4.Network Programming	**3**	**0**	**0**	**3**
5	Open Elective /Job Oriented	**Open Elective-II** Open Electives offered by other departments/ MEAN Stack Development *(Job Oriented)*	**3**	**0**	**0**	**3**
6	PC	Machine Learning using Python Lab	**0**	**0**	**3**	**1.5**
7	PC	Compiler Design Lab	**0**	**0**	**3**	**1.5**
8	PC	Cryptography and Network Security Lab	**0**	**0**	**3**	**1.5**
9	SO	**Skill Oriented Course - IV** 1.Big Data:Spark **OR** 2.MEAN Stack Technologies-Module I (HTML 5, JavaScript, Node.js, Express.js and TypeScript)	**0**	**0**	**4**	**2**
10	MC	Employability skills-II	**2**	**0**	**0**	**0**
Total credits						**21.5**
Industrial/Research Internship(Mandatory) 2 Months during summer vacation						
11	Minor	Data Structures and Algorithms[$]	3	0	2	3+1
12	Honors	Any course from the Pool, as per the opted track	4	0	0	4
Minor course through SWAYAM			**-**	**-**	**-**	**2**

$- Integrated Course

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IV B. Tech –I Semester						
S.No	**Course Code**	**Course Title**	**Hoursperweek**			**Credits**
			L	**T**	**P**	**C**
1	PE	**Professional Elective-III** 1.Cloud Computing 2.Neural Networks and Soft Computing 3.Ad-hoc and Sensor Networks 4.Cyber Security & Forensics	**3**	**0**	**0**	**3**
2	PE	**Professional Elective-IV** 1. Deep Learning Techniques 2. Social Networks & Semantic Web 3. Computer Vision 4.MOOCS-NPTEL/SWAYAM%	**3**	**0**	**0**	**3**
3	PE	**Professional Elective-V** 1.Block-Chain Technologies 2.Wireless Network Security 3.Ethical Hacking 4.MOOCS-NPTEL/SWAYAM%	**3**	**0**	**0**	**3**
4	Open Elective /Job Oriented	**Open Elective-III** Open Electives offered by other departments/ API and Microservices (Job Oriented Course)	**3**	**0**	**0**	**3**
5	Open Elective /Job Oriented	**Open Elective-IV** Open Electives offered by other departments/ Secure Coding Techniques (Job Oriented Course)	**3**	**0**	**0**	**3**
6	HS	Universal Human Values 2: Understanding Harmony	**3**	**0**	**0**	**3**
7	SO	1.PYTHON: Deep Learning **OR** 2.MEAN Stack Technologies-Module II-Angular JS and MongoDB **OR** 3.APSSDC offered Courses	**0**	**0**	**4**	**2**
8	PR	**Industrial/Research Internship 2 months (Mandatory) after third year (to be evaluated during VII semester**	**0**	**0**	**0**	**3**
Total credits						**23**
11	Minor	Software Engineering$ / any other from PART-B (For Minor)	3	0	2	3+1
12	Honors	Any course from the Pool, as per the opted track	4	0	0	4
Minor course through SWAYAM			-	-	-	**2**

$- Integrated Course
% - MOOC Course

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

I Year – II Semester		L	T	P	C
		2	0	0	0
ENVIRONMENT SCIENCE					

Course Objectives:
The objectives of the course are to impart:

- Overall understanding of the natural resources.
- Basic understanding of the ecosystem and its diversity.
- Acquaintance on various environmental challenges induced due to unplanned anthropogenic activities.
- An understanding of the environmental impact of developmental activities.
- Awareness on the social issues, environmental legislation and global treaties.

UNIT I
Multidisciplinary nature of Environmental Studies: Definition, Scope and Importance – Sustainability: Stockholm and Rio Summit–Global Environmental Challenges: Global warming and climate change, acid rains, ozone layer depletion, population growth and explosion, effects. Role of information technology in environment and human health.
Ecosystems: Concept of an ecosystem. - Structure and function of an ecosystem; Producers, consumers and decomposers. - Energy flow in the ecosystem - Ecological succession. - Food chains, food webs and ecological pyramids; Introduction, types, characteristic features, structure and function of Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems.

UNIT II
Natural Resources: Natural resources and associated problems.
Forest resources: Use and over – exploitation, deforestation – Timber extraction – Mining, dams and other effects on forest and tribal people.
Water resources: Use and over utilization of surface and ground water – Floods, drought, conflicts over water, dams – benefits and problems.
Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources.
Food resources: World food problems, changes caused by non-agriculture activities-effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity.
Energy resources: Growing energy needs, renewable and non-renewable energy sources use of alternate energy sources.
Land resources: Land as a resource, land degradation, Wasteland reclamation, man induced landslides, soil erosion and desertification; Role of an individual in conservation of natural resources; Equitable use of resources for sustainable lifestyles.

UNIT III
Biodiversity and its conservation: Definition: genetic, species and ecosystem diversity-classification - Value of biodiversity: consumptive use, productive use, social-Biodiversity at national and local levels. India as a mega-diversity nation - Hot-sports of biodiversity - Threats to biodiversity: habitat loss, man-wildlife conflicts. - Endangered and endemic species of India – Conservation of biodiversity: conservation of biodiversity.

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

UNIT IV

Environmental Pollution: Definition, Cause, effects and control measures of Air pollution, Water pollution, Soil pollution, Noise pollution, Nuclear hazards. Role of an individual in prevention of pollution. - Pollution case studies, Sustainable Life Studies. Impact of Fire Crackers on Men and his well being.

Solid Waste Management: Sources, Classification, effects and control measures of urban and industrial solid wastes. Consumerism and waste products, Biomedical, Hazardous and e – waste management.

UNIT V

Social Issues and the Environment: Urban problems related to energy -Water conservation, rain water harvesting-Resettlement and rehabilitation of people; its problems and concerns. Environmental ethics: Issues and possible solutions. Environmental Protection Act -Air (Prevention and Control of Pollution) Act. –Water (Prevention and control of Pollution) Act - Wildlife Protection Act -Forest Conservation Act-Issues involved in enforcement of environmental legislation. -Public awareness.

Environmental Management: Impact Assessment and its significance various stages of EIA, preparation of EMP and EIS, Environmental audit. Ecotourism, Green Campus – Green business and Green politics.

The student should Visit an Industry / Ecosystem and submit a report individually on any **issues related to Environmental Studies course and make a power point presentation.**

Text Books:

1) Environmental Studies, K. V. S. G. Murali Krishna, VGS Publishers, Vijayawada
2) Environmental Studies, R. Rajagopalan, 2nd Edition, 2011, Oxford University Press.
3) Environmental Studies, P. N. Palanisamy, P. Manikandan, A. Geetha, and K. Manjula Rani; Pearson Education, Chennai

Reference Books:

1) Text Book of Environmental Studies, Deeshita Dave & P. Udaya Bhaskar, Cengage Learning.
2) A Textbook of Environmental Studies, Shaashi Chawla, TMH, New Delhi
3) Environmental Studies, Benny Joseph, Tata McGraw Hill Co, New Delhi
4) Perspectives in Environment Studies, Anubha Kaushik, C P Kaushik, New Age International Publishers, 2014

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

II Year - I Semester		L	T	P	C
		2	0	0	0
CONSTITUTION OF INDIA					

Course Objectives:

- To Enable the student to understand the importance of constitution
- To understand the structure of executive, legislature and judiciary
- To understand philosophy of fundamental rights and duties
- To understand the autonomous nature of constitutional bodies like Supreme Court and high court controller and auditor general of India and election commission of India.
- To understand the central and state relation financial and administrative

Course Outcomes:

At the end of the course, the student will be able to have a clear knowledge on the following:

- Understand historical background of the constitution making and its importance for building a democratic India.
- Understand the functioning of three wings of the government ie., executive, legislative and judiciary.
- Understand the value of the fundamental rights and duties for becoming good citizen of India.
- Analyze the decentralization of power between central, state and local self-government.
- Apply the knowledge in strengthening of the constitutional institutions like CAG, Election Commission and UPSC for sustaining democracy.
  1. Know the sources, features and principles of Indian Constitution.
  2. Learn about Union Government, State government and its administration.
  3. Get acquainted with Local administration and Pachayati Raj.
  4. Be aware of basic concepts and developments of Human Rights.
  5. Gain knowledge on roles and functioning of Election Commission

UNIT I

Introduction to Indian Constitution: Constitution meaning of the term, Indian Constitution - Sources and constitutional history, Features - Citizenship, Preamble, Fundamental Rights and Duties, Directive Principles of State Policy.

Learning outcomes:After completion of this unit student will

- Understand the concept of Indian constitution
- Apply the knowledge on directive principle of state policy
- Analyze the History, features of Indian constitution
- Evaluate Preamble Fundamental Rights and Duties

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UNIT II

Union Government and its Administration Structure of the Indian Union: Federalism, Centre-State relationship, President: Role, power and position, PM and Council of ministers, Cabinet and Central Secretariat, LokSabha, RajyaSabha, The Supreme Court and High Court: Powers and Functions;

Learning outcomes: After completion of this unit student will

- Understand the structure of Indian government
- Differentiate between the state and central government
- Explain the role of President and Prime Minister
- Know the Structure of supreme court and High court

UNIT III

State Government and its Administration Governor - Role and Position - CM and Council of ministers, State Secretariat: Organisation, Structure and Functions

Learning outcomes: After completion of this unit student will

- Understand the structure of state government
- Analyze the role Governor and Chief Minister
- Explain the role of state Secretariat
- Differentiate between structure and functions of state secretariat

UNIT IV

A.Local Administration - District's Administration Head - Role and Importance, Municipalities - Mayor and role of Elected Representative - CEO of Municipal Corporation PachayatiRaj: Functions PRI: ZilaPanchayat, Elected officials and their roles, CEO ZilaPanchayat: Block level Organizational Hierarchy - (Different departments), Village level - Role of Elected and Appointed officials - Importance of grass root democracy

Learning outcomes:-After completion of this unit student will

- Understand the local Administration
- Compare and contrast district administration role and importance
- Analyze the role of Myer and elected representatives of Municipalities
- Evaluate Zillapanchayat block level organisation

UNIT V

Election Commission: Election Commission- Role of Chief Election Commissioner and Election Commissionerate State Election Commission:, Functions of Commissions for the welfare of SC/ST/OBC and women

Learning outcomes: After completion of this unit student will

- Know the role of Election Commission apply knowledge
- Contrast and compare the role of Chief Election commissioner and Commissiononerate
- Analyze role of state election commission
- Evaluate various commissions of viz SC/ST/OBC and women

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

IV Year – I Semester		L	T	P	C
		3	0	0	3
UNIVERSAL HUMAN VALUES 2: UNDERSTANDING HARMONY					

Human Values Courses

This course also discusses their role in their family. It, very briefly, touches issues related to their role in the society and the nature, which needs to be discussed at length in one more semester forwhich the foundation course named as "H-102 Universal Human Values 2: Understanding Harmony"is designed which may be covered in their III or IV semester. During the Induction Program, students would get an initial exposure to human values through Universal Human Values – I. This exposure is to be augmented by this compulsory full semester foundation course.

Universal Human Values 2: Understanding Harmony

Course code: HSMC (H-102)
Credits: L-T-P-C 2-1-0-3 or 2L:1T:0P 3 credits
Pre-requisites: None. Universal Human Values 1 (desirable)

1. Objective:

The objective of the course is four fold:

1. Development of a holistic perspective based on self-exploration about themselves (human being),family, society and nature/existence.
2. Understanding (or developing clarity) of the harmony in the human being, family, society and nature/existence
3. Strengthening of self-reflection.
4. Development of commitment and courage to act.

2. Course Topics:

The course has 28 lectures and 14 practice sessions in 5 modules:

Module 1: Course Introduction - Need, Basic Guidelines, Content and Process for Value Education

1. Purpose and motivation for the course, recapitulation from Universal Human Values-I
2. Self-Exploration–what is it? - Its content and process; 'Natural Acceptance' and Experiential Validation- as the process for self-exploration
3. Continuous Happiness and Prosperity- A look at basic Human Aspirations
4. Right understanding, Relationship and Physical Facility- the basic requirements for fulfilment of aspirations of every human being with their correct priority
5. Understanding Happiness and Prosperity correctly- A critical appraisal of the current scenario
6. Method to fulfil the above human aspirations: understanding and living in harmony at various levels.

Include practice sessions to discuss natural acceptance in human being as the innate acceptance for living with responsibility (living in relationship, harmony and co-existence) rather than asarbitrariness in choice based on liking-disliking

Module 2: Understanding Harmony in the Human Being - Harmony in Myself!

4. Understanding human being as a co-existence of the sentient 'I' and the material 'Body'
5. Understanding the needs of Self ('I') and 'Body' - happiness and physical facility
6. Understanding the Body as an instrument of 'I' (I being the doer, seer and enjoyer)
7. Understanding the characteristics and activities of 'I' and harmony in 'I'
8. Understanding the harmony of I with the Body: Sanyam and Health; correct appraisal of Physical needs, meaning of Prosperity in detail
9. Programs to ensureSanyam and Health.

Include practice sessions to discuss the role others have played in making material goods available to me. Identifying from one's own life. Differentiate between prosperity and accumulation. Discuss program for ensuring health vs dealing with disease

Module 3: Understanding Harmony in the Family and Society- Harmony in Human-Human Relationship

10. Understanding values in human-human relationship; meaning of Justice (nine universal values in relationships) and program for its fulfilment to ensure mutual happiness; Trust and Respect as the foundational values of relationship
11. Understanding the meaning of Trust; Difference between intention and competence
12. Understanding the meaning of Respect, Difference between respect and differentiation; the other salient values in relationship
13. Understanding the harmony in the society (society being an extension of family): Resolution, Prosperity, fearlessness (trust) and co-existence as comprehensive Human Goals
14. Visualizing a universal harmonious order in society- Undivided Society, Universal Order- from family to world family.

Include practice sessions to reflect on relationships in family, hostel and institute as extended family, real life examples, teacher-student relationship, goal of education etc. Gratitude as a universal value in relationships. Discuss with scenarios. Elicit examples from students' lives

Module 4: Understanding Harmony in the Nature and Existence - Whole existence as Coexistence

18. Understanding the harmony in the Nature
19. Interconnectedness and mutual fulfilment among the four orders of nature- recyclability and self-regulation in nature
20. Understanding Existence as Co-existence of mutually interacting units in all-pervasive space
21. Holistic perception of harmony at all levels of existence.

Include practice sessions to discuss human being as cause of imbalance in nature (film "Home" can be used), pollution, depletion of resources and role of technology etc.

Module 5: Implications of the above Holistic Understanding of Harmony on Professional Ethics

22. Natural acceptance of human values
23. Definitiveness of Ethical Human Conduct
24. Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order
25. Competence in professional ethics: a. Ability to utilize the professional competence for augmenting universal human order b. Ability to identify the scope and characteristics of people- friendly and eco-friendly production systems, c. Ability to identify and develop appropriate technologies and management patterns for above production systems.
26. Case studies of typical holistic technologies, management models and production systems
27. Strategy for transition from the present state to Universal Human Order: a. At the level of individual: as socially and ecologically responsible engineers, technologists and managers b. At the level of society: as mutually enriching institutions and organizations
28. Sum up.

Include practice Exercises and Case Studies will be taken up in Practice (tutorial) Sessions eg. To discuss the conduct as an engineer or scientist etc.

3. READINGS:

3.1 Text Book

1. Human Values and Professional Ethics by R R Gaur, R Sangal, G P Bagaria, Excel Books,New Delhi, 2010

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KAKINADA – 533 003, Andhra Pradesh, India

DEPARTMENT OF CSE - ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

COURSE STRUCTURE AND SYLLABUS

For UG – R20

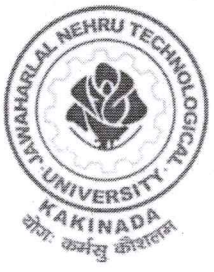
B. Tech - COMPUTER SCIENCE AND ENGINEERING with Specialization

Common to

(i) **CSE (ARTIFICIAL INTELLIGENCE and MACHINE LEARNING)-Branch Code:42**

(ii) **ARTIFICIAL INTELLIGENCE and MACHINE LEARNING - Branch Code: 61**

(Applicable for batches admitted from 2020-2021)



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COURSE STRUCTURE

I Year – I SEMESTER						
S. No	**Course Code**	**Courses**	**L**	**T**	**P**	**Credits**
1	HS1101	Communicative English	3	0	0	3
2	BS1101	Mathematics – I	3	0	0	3
3	BS1102	Applied Chemistry	3	0	0	3
4	ES1101	Programming for Problem Solving using C	3	0	0	3
5	ES1102	Computer Engineering Workshop	1	0	4	3
6	HS1102	English Communication Skills Laboratory	0	0	3	1.5
7	BS1103	Applied Chemistry Lab	0	0	3	1.5
8	ES1103	Programming for Problem Solving using C Lab	0	0	3	1.5
9	MC1101	Environmental Science*	2	0	0	0
Total Credits						**19.5**

I Year – II SEMESTER						
S. No	**Course Code**	**Courses**	**L**	**T**	**P**	**Credits**
1	BS1201	Mathematics – II	3	0	0	3
2	BS1202	Applied Physics	3	0	0	3
3	ES1201	Digital Logic Design	3	0	0	3
4	ES1202	Python Programming	3	0	0	3
5	CS1201	Data Structures	3	0	0	3
6	BS1203	Applied Physics Lab	0	0	3	1.5
7	ES1203	Python Programming Lab	0	0	3	1.5
8	CS1202	Data Structures Lab	0	0	3	1.5
9	MC1201	Constitution of India *	2	0	0	0
Total Credits						**19.5**

*Internal Evaluation

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II Year – I SEMESTER						
S. No	**Course Code**	**Courses**	**L**	**T**	**P**	**Credits**
1	BS	Mathematics III	3	0	0	3
2	CS	Mathematical Foundations of Computer Science	3	0	0	3
3	CS	Introduction to Artificial Intelligence and Machine Learning	3	0	0	3
4	CS	Object Oriented Programming with Java	3	0	0	3
5	CS	Database Management Systems	3	0	0	3
6	CS	Introduction to Artificial Intelligence and Machine Learning Lab	0	0	3	1.5
7	CS	Object Oriented Programming with Java Lab	0	0	3	1.5
8	CS	Database Management Systems Lab	0	0	3	1.5
9	SO	Mobile App Development	0	0	4	2
10	MC	Essence of Indian Traditional Knowledge	2	0	0	0
Total Credits						**21.5**

II Year – II SEMESTER						
S. No	**Course Code**	**Courses**	**L**	**T**	**P**	**Credits**
1	BS	Probability and Statistics	3	0	0	3
2	CS	Computer Organization	3	0	0	3
3	CS	Data Warehousing and Mining	3	0	0	3
4	ES	Formal Languages and Automata Theory	3	0	0	3
5	HS	Managerial Economics and Financial Accountancy	3	0	0	3
6	CS	R Programming Lab	0	0	3	1.5
7	CS	Data Mining using Python Lab	0	0	3	1.5
8	ES	Web Application Development Lab	0	0	3	1.5
9	SO	Natural Language Processing with Python	0	0	4	2
Total Credits						**21.5**
10	Minor	Introduction to Artificial Intelligence and Machine Learning $^{\$}$	3	0	2	**4**

$- Integrated Course

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III B. Tech – I Semester						
S.No	**Course Code**	**Courses**	**Hours per week**			**Credits**
			L	**T**	**P**	**C**
1	PC	Compiler Design	3	0	0	3
2	PC	Operating Systems	3	0	0	3
3	PC	Machine Learning	3	0	0	3
4	Open Elective/Job Oriented	**Open Elective-I** Open Electives offered by other departments/ Optimization in Operations Research(Job oriented course)	3	0	0	3
5	PE	**Professional Elective-I** 1. Software Engineering 2. Computer Vision 3. Data Visualization 4. DevOps 5. Machine Learning for Engineering and Science Applications (NPTEL) (https://nptel.ac.in/courses/106106198)	3	0	0	3
6	PC	Operating Systems & Compiler Design Lab	0	0	3	1.5
7	PC	Machine Learning Lab	0	0	3	1.5
8	SO	**Skill Oriented Course - III** Continuous Integration and Continuous Delivery using DevOps	0	0	4	2
9	MC	Employability Skills-I	2	0	0	0
10	PR	**Summer Internship 2 Months (Mandatory) after second year(to be evaluated during V semester**	0	0	0	1.5
Total credits						**21.5**
11	Minor	Machine Learning[$]	3	0	2	**4**

$- Integrated Course

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III B. Tech – II Semester						
S.No	**Course Code**	**Courses**	**Hours per week**			**Credits**
			L	**T**	**P**	**C**
1	PC	Computer Networks	3	0	0	3
2	PC	Deep Learning	3	0	0	3
3	PC	Design and Analysis of Algorithms	3	0	0	3
4	PE	**Professional Elective-II** 1. Software Project Management 2. Distributed Systems 3. Internet of Things 4. Network Programming	3	0	0	3
5	Open Elective/Job Oriented	**Open Elective-II** Open Electives offered by other departments/ MEAN Stack Development (Job Oriented Course)	3	0	0	3
6	PC	Computer Networks Lab	0	0	3	1.5
7	PC	Algorithms for Efficient Coding Lab	0	0	3	1.5
8	PC	Deep Learning with Tensorflow	0	0	3	1.5
9	SO	**Skill Oriented Course - IV** MEAN Stack Technologies-Module I-HTML 5, JavaScript, Node.js, Express.js and TypeScipt **OR** Big Data : Apache Spark	0	0	4	2
10	MC	Employability skills-II	2	0	0	0
Total credits						**21.5**
Industrial/Research Internship(Mandatory) 2 Months during summer vacation						
11	Minor	Deep Learning$	3	0	2	**4**
Minor courses through SWAYAM			0	0	0	**2**

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IV B. Tech –I Semester (Tentative)						
S.No	Course Code	Course Title	Hours per week			Credits
			L	T	P	C
1	PE	**Professional Elective-III** 1.Reinforcement Learning 2.Soft Computing 3. Cryptography and Network Security 4. Block Chain Technologies 5. Speech Processing	3	0	0	3
2	PE	**Professional Elective-IV** 1. Robotic Process Automation 2. Cloud Computing 3. Big Data Analytics 4. NOSQL Databases 5. Video Analytics	3	0	0	3
3	PE	**Professional Elective-V** 1. Social Network Analysis 2. Recommender Systems 3. AI Chatbots 4. Object Oriented Analysis and Design 5. Semantic Web	3	0	0	3
4	Open Elective /Job Oriented	**Open Elective-III** Open Electives offered by other departments/API and Microservices (Job Oriented Course)	3	0	0	3
5	Open Elective /Job Oriented	**Open Elective-IV** Open Electives offered by other departments/Secure Coding Techniques (Job Oriented Course)	3	0	0	3
6	HS	Universal Human Values 2: Understanding Harmony	3	0	0	3
7	SO	1.Machine Learning with Go (Infosys Spring Board) **OR** 2.MEAN Stack Technologies-Module II-Angular JS and MongoDB	0	0	4	2
8	PR	**Industrial/Research Internship 2 months (Mandatory) after third year (to be evaluated during VII semester**	0	0	0	3
Total credits						**23**
9	Minor	Reinforcement Learning	4	0	0	4
Minor courses through SWAYAM			0	0	0	2

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IV B. Tech –II Semester						
S.No	Course Code	Course Title	Hours per week			Credits
			L	T	P	C
1	Project	Major Project Work, Seminar, Internship	-	-	-	12
Total credits						12

SUGGESTED COURSES MINOR ENGINEERING IN B.TECH.CSE- AI

Eligibility for Minor in CSE-AI: -

Note:

1. TWO, NPTEL courses of EIGHT week duration covering a total of 4 credits (offered by CSE Department only), Student can register at any time after the completion of II B.Tech. I Sem.

S.No.	Subject Title	Credits
1	Introduction to Artificial Intelligence and Machine Learning	4
2	Machine Learning	4
3	Deep Learning	4
4	Reinforcement Learning	4
5	MOOCS Courses ** 1. Introduction to Soft Computing(NPTEL) (https://nptel.ac.in/courses/106105173) 2. Digital Speech Processing (NPTEL) (https://nptel.ac.in/courses/117105145) 3. Cloud Computing (NPTEL) (https://nptel.ac.in/courses/106105167) 4. Practical Machine Learning with Tensorflow (NPTEL) (https://nptel.ac.in/courses/106106213)	4
	Total	**20**

**Choose 02 MOOCS courses @ 2credits each from SWAYAM/NPTEL

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I Year - I Semester		L	T	P	C
		2	0	0	0
ENVIRONMENTAL SCIENCE (MC1101)					

Course Objectives:

The objectives of the course are to impart:

- Overall understanding of the natural resources.
- Basic understanding of the ecosystem and its diversity.
- Acquaintance on various environmental challenges induced due to unplanned anthropogenic activities.
- An understanding of the environmental impact of developmental activities.
- Awareness on the social issues, environmental legislation and global treaties.

UNIT I

Multidisciplinary nature of Environmental Studies: Definition, Scope and Importance – Sustainability: Stockholm and Rio Summit–Global Environmental Challenges: Global warming and climate change, acid rains, ozone layer depletion, population growth and explosion, effects. Role of information technology in environment and human health.

Ecosystems: Concept of an ecosystem. - Structure and function of an ecosystem; Producers, consumers and decomposers. - Energy flow in the ecosystem - Ecological succession. - Food chains, food webs and ecological pyramids; Introduction, types, characteristic features, structure and function of Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems.

UNIT II

Natural Resources: Natural resources and associated problems.

Forest resources: Use and over – exploitation, deforestation – Timber extraction – Mining, dams and other effects on forest and tribal people.

Water resources: Use and over utilization of surface and ground water – Floods, drought, conflicts over water, dams – benefits and problems.

Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources.

Food resources: World food problems, changes caused by non-agriculture activities-effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity.

Energy resources: Growing energy needs, renewable and non-renewable energy sources use of alternate energy sources.

Land resources: Land as a resource, land degradation, Wasteland reclamation, man induced landslides, soil erosion and desertification; Role of an individual in conservation of natural resources; Equitable use of resources for sustainable lifestyles.

UNIT III

Biodiversity and its conservation: Definition: genetic, species and ecosystem diversity-classification - Value of biodiversity: consumptive use, productive use, social-Biodiversity at national and local levels. India as a mega-diversity nation - Hot-sports of biodiversity - Threats to biodiversity: habitat loss, man-wildlife conflicts. - Endangered and endemic species of India – Conservation of biodiversity: conservation of biodiversity.

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UNIT IV

Environmental Pollution: Definition, Cause, effects and control measures of Air pollution, Water pollution, Soil pollution, Noise pollution, Nuclear hazards. Role of an individual in prevention of pollution. - Pollution case studies, Sustainable Life Studies. Impact of Fire Crackers on Men and his well being.

Solid Waste Management: Sources, Classification, effects and control measures of urban and industrial solid wastes. Consumerism and waste products, Biomedical, Hazardous and e – waste management.

UNIT V

Social Issues and the Environment: Urban problems related to energy -Water conservation, rain water harvesting-Resettlement and rehabilitation of people; its problems and concerns. Environmental ethics: Issues and possible solutions. Environmental Protection Act -Air (Prevention and Control of Pollution) Act. –Water (Prevention and control of Pollution) Act - Wildlife Protection Act -Forest Conservation Act-Issues involved in enforcement of environmental legislation. -Public awareness.

Environmental Management: Impact Assessment and its significance various stages of EIA, preparation of EMP and EIS, Environmental audit. Ecotourism, Green Campus – Green business and Green politics.

The student should Visit an Industry / Ecosystem and submit a report individually on any issues related to Environmental Studies course and make a power point presentation.

Text Books:

1) Environmental Studies, K. V. S. G. Murali Krishna, VGS Publishers, Vijayawada
2) Environmental Studies, R. Rajagopalan, 2nd Edition, 2011, Oxford University Press.
3) Environmental Studies, P. N. Palanisamy, P. Manikandan, A. Geetha, and K. Manjula Rani; Pearson Education, Chennai

Reference Books:

1) Text Book of Environmental Studies, Deeshita Dave & P. UdayaBhaskar, Cengage Learning.
2) A Textbook of Environmental Studies, ShaashiChawla, TMH, New Delhi
3) Environmental Studies, Benny Joseph, Tata McGraw Hill Co, New Delhi
4) Perspectives in Environment Studies, AnubhaKaushik, C P Kaushik, New Age International Publishers, 2014

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I Year – II Semester		L	T	P	C
		2	0	0	0
CONSTITUTION OF INDIA (MC1201)					

Course Objectives:

- To Enable the student to understand the importance of constitution
- To understand the structure of executive, legislature and judiciary
- To understand philosophy of fundamental rights and duties
- To understand the autonomous nature of constitutional bodies like Supreme Court and high court controller and auditor general of India and election commission of India.
- To understand the central and state relation financial and administrative

Course Outcomes:

At the end of the course, the student will be able to have a clear knowledge on the following:

- Understand historical background of the constitution making and its importance for building a democratic India.
- Understand the functioning of three wings of the government ie., executive, legislative and judiciary.
- Understand the value of the fundamental rights and duties for becoming good citizen of India.
- Analyze the decentralization of power between central, state and local self-government.
- Apply the knowledge in strengthening of the constitutional institutions like CAG, Election Commission and UPSC for sustaining democracy.
  1. Know the sources, features and principles of Indian Constitution.
  2. Learn about Union Government, State government and its administration.
  3. Get acquainted with Local administration and Pachayati Raj.
  4. Be aware of basic concepts and developments of Human Rights.
  5. Gain knowledge on roles and functioning of Election Commission

UNIT I

Introduction to Indian Constitution: Constitution meaning of the term, Indian Constitution - Sources and constitutional history, Features - Citizenship, Preamble, Fundamental Rights and Duties, Directive Principles of State Policy.

Learning outcomes: After completion of this unit student will

- Understand the concept of Indian constitution
- Apply the knowledge on directive principle of state policy
- Analyze the History, features of Indian constitution
- Evaluate Preamble Fundamental Rights and Duties

UNIT II

Union Government and its Administration Structure of the Indian Union: Federalism, Centre-State relationship, President: Role, power and position, PM and Council of ministers, Cabinet and Central Secretariat, LokSabha, RajyaSabha, The Supreme Court and High Court: Powers and Functions;

Learning outcomes: After completion of this unit student will

- Understand the structure of Indian government
- Differentiate between the state and central government
- Explain the role of President and Prime Minister

- Know the Structure of supreme court and High courtUNIT III

State Government and its Administration Governor - Role and Position - CM and Council of ministers, State Secretariat: Organisation, Structure and Functions

Learning outcomes: After completion of this unit student will

- Understand the structure of state government
- Analyze the role Governor and Chief Minister
- Explain the role of state Secretariat
- Differentiate between structure and functions of state secretariat

UNIT IV

A.Local Administration - District's Administration Head - Role and Importance, Municipalities - Mayor and role of Elected Representative - CEO of Municipal Corporation PachayatiRaj: Functions PRI: ZilaPanchayat, Elected officials and their roles, CEO ZilaPanchayat: Block level Organizational Hierarchy - (Different departments), Village level - Role of Elected and Appointed officials - Importance of grass root democracy

Learning outcomes:-After completion of this unit student will

- Understand the local Administration
- Compare and contrast district administration role and importance
- Analyze the role of Myer and elected representatives of Municipalities
- Evaluate Zillapanchayat block level organisation

UNIT V

Election Commission: Election Commission- Role of Chief Election Commissioner and Election Commissionerate State Election Commission:, Functions of Commissions for the welfare of SC/ST/OBC and women

Learning outcomes: After completion of this unit student will

- Know the role of Election Commission apply knowledge
- Contrast and compare the role of Chief Election commissioner and Commissiononerate
- Analyze role of state election commission
- Evaluate various commissions of viz SC/ST/OBC and women

References:

1) Durga Das Basu, Introduction to the Constitution of India, Prentice Hall of India Pvt. Ltd.
2) SubashKashyap, Indian Constitution, National Book Trust
3) J.A. Siwach, Dynamics of Indian Government & Politics
4) D.C. Gupta, Indian Government and Politics
5) H.M.Sreevai, Constitutional Law of India, 4th edition in 3 volumes (Universal Law Publication)
6) J.C. Johari, Indian Government andPolitics Hans
7) J. Raj IndianGovernment and Politics
8) M.V. Pylee, Indian Constitution Durga Das Basu, Human Rights in Constitutional Law, Prentice – Hall of India Pvt. Ltd.. New Delhi
9) Noorani, A.G., (South Asia Human Rights Documentation Centre), Challenges to Civil Right), Challenges to Civil Rights Guarantees in India, Oxford University Press 2012

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II Year - I Semester		L	T	P	C
		2	0	0	0
ESSENCE OF INDIAN TRADITIONAL KNOWLEDGE					

Course Objectives:

- The course aims at imparting basic principles of thought process, reasoning and inferencing. Sustainability is at the core of Indian Traditional Knowledge Systems connecting society and nature.
- Holistic life style of Yogic-science and wisdom capsules in Sanskrit literature are also important in modern society with rapid technological advancements and societal disruptions.
- The course focuses on introduction to Indian Knowledge System, Indian perspective of modern scientific world-view and basic principles of Yoga and holistic health care system

Course Outcomes:

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

- Understand the significance of Indian Traditional Knowledge
- Classify the Indian Traditional Knowledge
- Compare Modern Science with Indian Traditional Knowledge system.
- Analyze the role of Government in protecting the Traditional Knowledge
- Understand the impact of Philosophical tradition on Indian Knowledge System.

Unit I

Introduction to Traditional Knowledge: Define Traditional Knowledge- Nature and Characteristics-Scope and Importance- kinds of Traditional Knowledge- The historical impact of social change on Traditional Knowledge Systems- Value of Traditional knowledge in global economy.

Unit II

Basic structure of Indian Knowledge System: Astadash Vidya- 4 Ved - 4 Upaved (Ayurved, Dhanurved, Gandharva Ved & Sthapthya Adi), 6 vedanga (Shisha, Kalppa, Nirukha,Vykaran, Jyothisha & Chand),4 upanga (Dharmashastra, Meemamsa, purana & Tharka Shastra).

Unit III

Modern Science and Indian Knowledge System-Indigenous Knowledge, Characteristics- Yoga and Holistic Health care-cases studies.

Unit IV

Protection of Traditional Knowledge: The need for protecting traditional knowledge -Significance of Traditional knowledge Protection-Role of government to harness Traditional Knowledge.

Unit V

Impact of Traditions: Philosophical Tradition (Sarvadarshan) Nyaya, Vyshepec, Sankhya, Yog, Meemamsa, Vedantha, Chavanka, Jain & Boudh - Indian Artistic Tradition - Chitrakala, Moorthikala, Vasthukala , Sthapthya, Sangeetha, NruthyaYevamSahithya

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Reference Books :

1. Traditional Knowledge System in India, by AmitJha, 2009.
2. Traditional Knowledge System and Technology in India by Basanta Kumar Mohanta and Vipin Kumar Singh, PratibhaPrakashan 2012.
3. Sivaramakrishnan (Ed.), Cultural Heritage of India-course material, BharatiyaVidya
4. Swami Jitatmanand, Holistic Science and Vedant, BharatiyaVidyaBhavan
5. Yoga Sutra of Patanjali, Ramakrishna Mission, Kolkata.
6. Pramod Chandra, India Arts, Howard Univ. Press, 1983.
7. Krishna Chaitanya, Arts of India, Abhinav Publications, 1987.

Web Resources:

1. https://www.wipo.int/wipo_magazine/en/2017/01/article_0004.html
2. http://iks.iitgn.ac.in/wp-content/uploads/2016/01/Indian-Knowledge-Systems-Kapil-Kapoor.pdf
3. https://www.wipo.int/edocs/mdocs/tk/en/wipo_grtkf_ic_21/wipo_grtkf_ic_21_ref_facilitators_text.pdf

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IV B Tech I Sem		L	T	P	C
		3	0	0	3
UNIVERSAL HUMAN VALUES 2: UNDERSTANDING HARMONY					

Human Values Courses
This course also discusses their role in their family. It, very briefly, touches issues related to their role in the society and the nature, which needs to be discussed at length in one more semester for which the foundation course named as "H-102 Universal Human Values 2: Understanding Harmony" is designed which may be covered in their III or IV semester. During the Induction Program, students would get an initial exposure to human values through Universal Human Values – I. This exposure is to be augmented by this compulsory full semester foundation course.

Universal Human Values 2: Understanding Harmony
Course code: HSMC (H-102)
Credits: L-T-P-C 2-1-0-3 or 2L:1T:0P 3 credits
Pre-requisites: None. Universal Human Values 1 (desirable)

1. Objective:
The objective of the course is four fold:
1. Development of a holistic perspective based on self-exploration about themselves (human being),family, society and nature/existence.
2. Understanding (or developing clarity) of the harmony in the human being, family, society and nature/existence
3. Strengthening of self-reflection.
4. Development of commitment and courage to act.

2. Course Topics:
The course has 28 lectures and 14 practice sessions in 5 modules:

Module 1: Course Introduction - Need, Basic Guidelines, Content and Process for Value Education
1. Purpose and motivation for the course, recapitulation from Universal Human Values-I
2. Self-Exploration–what is it? - Its content and process; 'Natural Acceptance' and Experiential Validation- as the process for self-exploration
3. Continuous Happiness and Prosperity- A look at basic Human Aspirations
4. Right understanding, Relationship and Physical Facility- the basic requirements for fulfilment of aspirations of every human being with their correct priority
5. Understanding Happiness and Prosperity correctly- A critical appraisal of the current scenario
6. Method to fulfil the above human aspirations: understanding and living in harmony at various levels.

Include practice sessions to discuss natural acceptance in human being as the innate acceptance for living with responsibility (living in relationship, harmony and co-existence) rather than as arbitrariness in choice based on liking-disliking

Module 2: Understanding Harmony in the Human Being - Harmony in Myself!
7. Understanding human being as a co-existence of the sentient 'I' and the material 'Body'
8. Understanding the needs of Self ('I') and 'Body' - happiness and physical facility
9. Understanding the Body as an instrument of 'I' (I being the doer, seer and enjoyer)
10. Understanding the characteristics and activities of 'I' and harmony in 'I'
11. Understanding the harmony of I with the Body: Sanyam and Health; correct appraisal of Physical needs, meaning of Prosperity in detail

12. Programs to ensureSanyam and Health.

Include practice sessions to discuss the role others have played in making material goods available to me. Identifying from one's own life. Differentiate between prosperity and accumulation. Discuss program for ensuring health vs dealing with disease

Module 3: Understanding Harmony in the Family and Society- Harmony in Human-Human Relationship

13. Understanding values in human-human relationship; meaning of Justice (nine universal values in relationships) and program for its fulfillment to ensure mutual happiness; Trust and Respect as the foundational values of relationship
14. Understanding the meaning of Trust; Difference between intention and competence
15. Understanding the meaning of Respect, Difference between respect and differentiation; the other salient values in relationship
16. Understanding the harmony in the society (society being an extension of family): Resolution, Prosperity, fearlessness (trust) and co-existence as comprehensive Human Goals
17. Visualizing a universal harmonious order in society- Undivided Society, Universal Order- from family to world family.

Include practice sessions to reflect on relationships in family, hostel and institute as extended family, real life examples, teacher-student relationship, goal of education etc. Gratitude as a universal value in relationships. Discuss with scenarios. Elicit examples from students' lives

Module 4: Understanding Harmony in the Nature and Existence - Whole existence as Coexistence

18. Understanding the harmony in the Nature
19. Interconnectedness and mutual fulfillment among the four orders of nature- recyclability and self-regulation in nature
20. Understanding Existence as Co-existence of mutually interacting units in all-pervasive space
21. Holistic perception of harmony at all levels of existence.

Include practice sessions to discuss human being as cause of imbalance in nature (film "Home" can be used), pollution, depletion of resources and role of technology etc.

Module 5: Implications of the above Holistic Understanding of Harmony on Professional Ethics

22. Natural acceptance of human values
23. Definitiveness of Ethical Human Conduct
24. Basis for Humanistic Education, Humanistic Constitution and Humanistic Universal Order
25. Competence in professional ethics a. Ability to utilize the professional competence for augmenting universal human order b. Ability to identify the scope and characteristics of people- friendly and eco-friendly production systems, c. Ability to identify and develop appropriate technologies and management patterns for above production systems.
26. Case studies of typical holistic technologies, management models and production systems
27. Strategy for transition from the present state to Universal Human Order: a. At the level of individual: as socially and ecologically responsible engineers, technologists and managers b. At the level of society: as mutually enriching institutions and organizations
28. Sum up.

Include practice Exercises and Case Studies will be taken up in Practice (tutorial) Sessions eg. To discuss the conduct as an engineer or scientist etc.

7.1.1 Measures initiated by the institution for the promotion of gender equity during the year

Sri Venkateswara College of Engineering and Technology involves teaching gender sensitivity and encouraging behavior modification to eliminate gender discrimination. Gender sensitization helps promote equality for men and women by challenging stereotypes and questioning personal attitudes and beliefs.

Specific facilities provided for women in terms of:

a. Safety and security
b. Counseling
c. Common rooms
d. Surveillance system
e. Hostels
f. Health care center
g. Girls rest Room

To create gender equity in students and staff, the institute provides equal opportunities to staff and students in all the activities viz., administrative, teaching, co-curricular, extracurricular, sports, committees and cultural etc.

Annual gender sensitization action plan:

In our continued efforts to have a gender discrimination free campus and boost women empowerment, the institute plans to organize programs on the following topics.

- Conduct programs on women empowerment and employment opportunities.
- Conduct awareness workshops on health, hygiene, nutrition.
- Conduct motivational talk by women entrepreneurs, achievers in different fields.
- Counseling girl students to make them independent.

Specific facilities provided for women in terms of:

a. Safety and security

The institute is committed to ensure safety and security to all the students especially to girl students and strictly follow the safety norms in all aspects.

- Both girl's hostel & boys hostels are provided with fire extinguishers.
- The entire institute is surrounded with a compound wall and looked after by trained security 24x7.
- Girls' hostel is equipped with physical fitness equipment.
- Main gate, laboratories, roads, corridors, hostels are equipped with CC cameras are under surveillance monitored at the security office.
- Separate doctors are recruited and available in boys and girls hostels.
- Separate restrooms are provided to girl students.
- Separate dining rooms are provided to girl students in the canteen..
- Lady faculty members are appointed as bus in-charges.
- The college is providing sanitary napkins.

b. Counseling

All the departments have women staff to regularly counsel and address any issues facing by the girl students. For the constructive mentoring and development of students every class is assisted with a class-in-charge.

c. Common rooms

Ladies waiting halls are available in the college campus and first aid facility is available in both the hostels.

CC Cameras & Its Surveillance

The cc cameras covered the girls hostel, the college canteen, the main gate, class rooms and at reception counter, and all are observed by centralized and decentralized surveillance systems.

Girls Hostel:

Girl's hostel is surrounded by CC cameras in East, West, South and North corners. The surveillance is being monitored by the staff in the hostel.

Security:

Sri Venkateswara College of Engineering and Technology has sufficient Security Personnel. They are more committed and loyal to the organization.

Food Court:

There are facilities of canteen, Food Court, Bakery & cool drinks and Stationary facilities. There is a unique facility of separate dining rooms allotted to Boys, Girls and faculty in the Bakery & Cool Drinks store.

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LIST OF THE GENDER EQUITY PROMOTION PROGRAMS

S.No	Academic Year	Title of the Program	Date
1	2022-23	International Women's Day	08.03.2023
2		Gender equality at work place	06.01.2023
3		Awareness on using DISA app	12.11.2022
4		World Teacher's Day	15.10.2022
5		International Girl Child day	11.10.2022
6		Cultural Competitions for women	27.06.2022
7	2021-22	Health and Hygiene for women	19.04.2022
8		Cancer Care	06.04.2022
9		Legal Awareness	22.02.2022
10		Women Safety	14.12.2021
11		Mahila E-Haat	03.11.2021
12	2020-21	COVID Vaccination for Women	24.03.2021
13	2019-20	International Women's Day	07.03.2020
14		Women of The New Milinium Series – Hackathon	25.11.2019
15		A Talk on Woman Safety in public places	22.08.2019
16		Skills Development for Financial Independence	06.08.2019
17		Yoga Day For Women	21.06.2019
18	2018-19	Professional development with innovative thinking	11.04.2019
19		International Women's Day	08.03.2019
20		Personality Development	19.12.2018
21		Women Empowerment	12.07.2018
22		Yoga Day	21.06.2018

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DATE: 01.03.2023

CIRCULAR

All the Women faculty and girl students are here by informed that, the institute is going to organize a program on "International Women's Day on''8th March 2023 at seminar hall. So you are required to enroll your names with the program coordinator V.Suryakala (9542999192) and must assemble at Seminar Hall at 02:00PM.

V. Suryakala
CO ORDINATOR

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Signature												

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PROGRAM REPORT

DATE:09.03.2023

Program Name : International Women's Day

Date of activity : 08.03.2023

Venue :Seminar Hall

Report:

Sri Venkateswara Engineering &Technology (SVCET) organized a program on International Women's Day.V.Suryakala assistant professor organized this program.Many events and competitions were conucted.Along with principal Dr.S.C.V.Ramna Murthy Naidu,HODs,Women Staff and all the girl students participated in this program. All the winners were given away prizes . The coordinator thanked the gathering.

V. Suryakala
CO ORDINATOR

PRINCIPAL
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Sri Venkateswara College of Engineering & Technology
CHERLA, Srikakulam-532410 (A.P)

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Program Name : International Women's Day

Date : 08/03/2023

S.No.	Name of Participant	Student Reg. No.	Year & Branch	Signature
1	BEVARA NAGAMANI	19MT1A0404	IV/ECE	B. Nagamani
2	BONELA PRAMEELA RANI	19MT1A0405	IV/ECE	B. Prameela Rani
3	DANETI SWATHI	19MT1A0410	IV/ECE	D. Swathi
4	DEVARASETTI TANUJA	19MT1A0411	IV/ECE	D. Tanuja
5	DOLA PRASANTHI KUMARI	19MT1A0413	IV/ECE	D. Prasanthi Kumari
6	GARA LEELARANI	19MT1A0414	IV/ECE	G. Leela Rani
7	GUNUPURU GOWREESWARI	19MT1A0416	IV/ECE	G. Gowreeswari
8	GUNUPURU SULOCHANA	19MT1A0417	IV/ECE	G. sulochana
9	MAMIDI LAVANYA	19MT1A0423	IV/ECE	M. Lavanya
10	MANDALA YAMUNA	19MT1A0424	IV/ECE	M. Yamuna
11	PATNANA SANDHYARANI	19MT1A0427	IV/ECE	P. Sandhyarani
12	POLIPALLI YASHASWANI	19MT1A0428	IV/ECE	P. Yashaswani
13	POTNURU PRIYANKA	19MT1A0430	IV/ECE	P. Priyanka
14	REKHALA SWATHI	19MT1A0431	IV/ECE	R. Swathi
15	SANGIREDDI SAILAKSHMI	19MT1A0432	IV/ECE	S. Sailakshmi
16	SATHIVADA SAI BHAVANIKA	19MT1A0433	IV/ECE	S. SaiBhavanika
17	ULLAKULA JHANSI	19MT1A0436	IV/ECE	U. Jhansi
18	ABOTHULA SAI THUNAJA	19MT1A0501	IV/CSE	A. Sai thunaja
19	ADAPAKA PURNIMA	19MT1A0502	IV/CSE	A. purnima
20	CHINTADA SHARMILA	19MT1A0505	IV/CSE	C. Sharmila
21	GANDETI ASWINI	19MT1A0512	IV/CSE	G. Aswini
22	GIRADA SRAVANI	19MT1A0514	IV/CSE	G. Sravani
23	KADA PUJA	19MT1A0516	IV/CSE	K. PUJA
24	KALAGA MOUNIKA	19MT1A0517	IV/CSE	K. Mounika
25	KALAMATA GOWRI	19MT1A0518	IV/CSE	K. Gowri
26	KANCHARANA YAMINI	19MT1A0519	IV/CSE	K. yamini
27	KANITHI BHARGAVI	19MT1A0520	IV/CSE	K. Bhargavi
28	KARANAM SIREESHA	19MT1A0521	IV/CSE	K. Sireesha
29	KOKKIRI ANUSHA	19MT1A0522	IV/CSE	K. Anusha
30	KOLLI SRUTHI	19MT1A0523	IV/CSE	K. SRuthi

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S.No.	Name of Participant	Student Reg. No.	Year & Branch	Signature
31	BHAIRI NEERAJA	19MT1A0202	IV/EEE	B. Neeraja.
32	GODDU DIVYA	19MT1A0204	IV/EEE	G. Divya
33	LINGALA DEVI	19MT1A0206	IV/EEE	L. Devi
34	MUDDADA INDIRA	19MT1A0207	IV/EEE	M. Indira
35	BANALA DHANALAKSHMI	19MT1A0402	IV/ECE	B. Dhanalakshmi
36	BEVARA NAGAMANI	19MT1A0404	IV/ECE	B. Nagamani
37	BONELA PRAMEELA RANI	19MT1A0405	IV/ECE	B. Prameela Rani
38	DANETI SWATHI	19MT1A0410	IV/ECE	D. Swathi
39	DEVARASETTI TANUJA	19MT1A0411	IV/ECE	D. Tanuja
40	DOLA PRASANTHI KUMARI	19MT1A0413	IV/ECE	D. Prasanthi Kumari
41	GARA LEELARANI	19MT1A0414	IV/ECE	G. Leela rani
42	GUNUPURU GOWREESWARI	19MT1A0416	IV/ECE	G. Gowreeswari
43	GUNUPURU SULOCHANA	19MT1A0417	IV/ECE	G. Sulochana
44	MAMIDI LAVANYA	19MT1A0423	IV/ECE	M. Lavanya
45	UPPADA LAKSHMI	19MT1A0549	IV/CSE	m. Lavanya
46	URJANA SONIA	19MT1A0550	IV/CSE	Sonia
47	URLAPU SIREESHA	19MT1A0551	IV/CSE	U. Sireesha
48	VADDI SREELEKHA	19MT1A0552	IV/CSE	V. Sreelekha
49	AKUNDIRATNASREE	21MT1E0001	II / MBA	A. SREE
50	ANARASI ALISHA PATRO	21MT1E0004	II / MBA	
51	ANUSHA PANDEY	21MT1E0005	II / MBA	P. Anusha
52	BANGARU SURYA BHARGAVI	21MT1E0006	II / MBA	B. Bhargavi
53	ANTHARAKONDA JYOTHI	21MT1E0008	II / MBA	A. Jyothi

V. Surya kala
CO ORDINATOR

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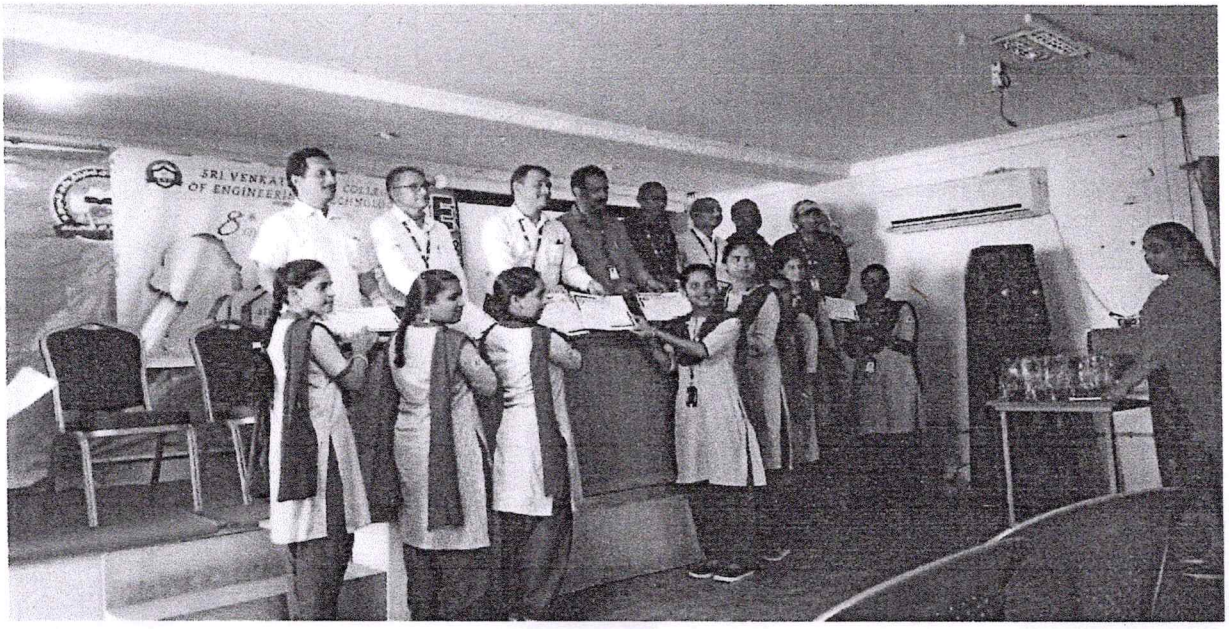
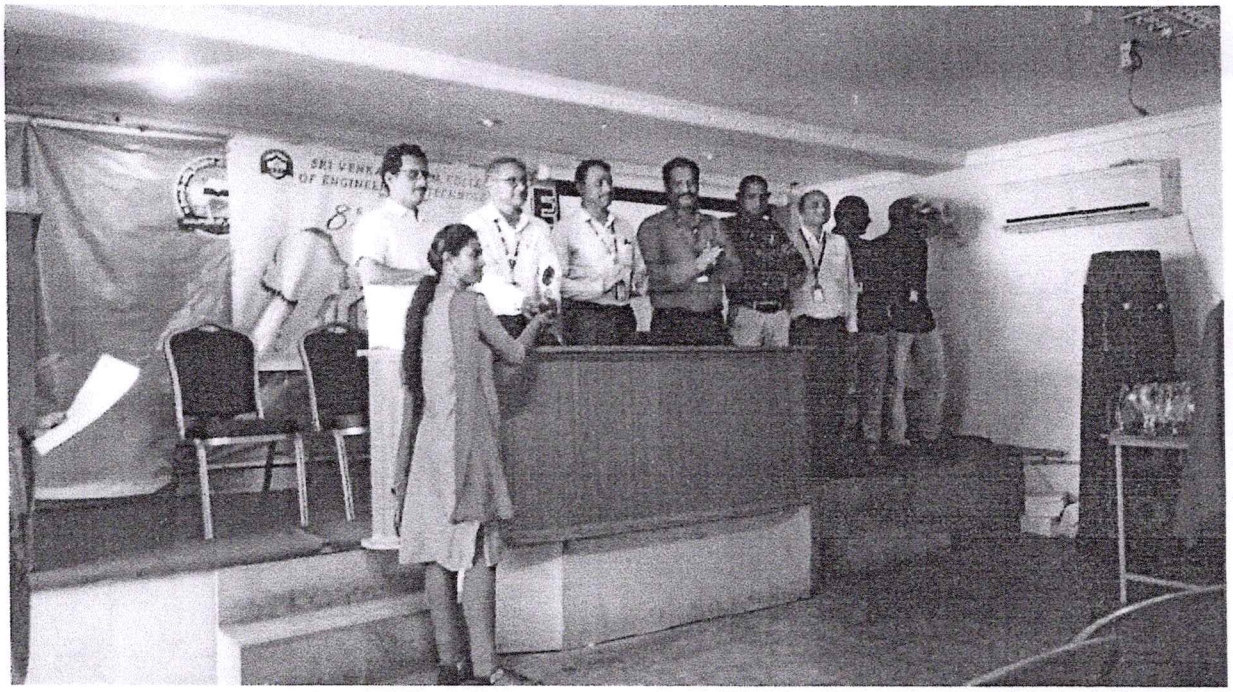
INTERNATIONAL WOMEN'S DAY





V. Suryakala
CO ORDINATOR

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DATE: 30.12.2022

CIRCULAR

All the Women staff members and girl students are here by informed that, the institute will organize an awareness program on "**Gender equality at work place**", on **06.01.2023**. So you are required to enroll your names with the program coordinator V.Suryakala (9542999192) and must assemble at Seminar Hall at 10:00 AM.

V. Suryakala
CO ORDINATOR

PRINCIPAL
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Signature												

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PROGRAM REPORT

DATE:07.01.2023

Program Name : Gender Equality at Work Place

Date of activity : 06.01.2023

Venue : Seminar Hall

Resource person : Dr .S.C.V Ramana Murthy, Principal

Report:

Sri Venkateswara Engineering &Technology (SVCET) college organized an awareness program on Gender Equality at Work Place. In this program the speaker Dr.S.C.V Ramana Murthy, Principal addressed the gathering and told us about gender equality prevents violence against women and girls. In some workplaces, women are still considered less than men. Gender equality is a human right. One of the biggest reasons for gender equality is gap between awareness and action.

V. Surya Kala
COORDINATOR

PRINCIPAL
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Program Name : Gender equality at work place

Date : 06/01/2023

S.No.	Name of Participant	Student Reg. No.	Year & Branch	Signature
1	DHAVALA KAVYA	19MT1A0508	IV/CSE	D. kavya
2	DHAVALA SAI SIREESHA	19MT1A0509	IV/CSE	D.Sai Sireesha
3	GAINEDI MONIKA PRIYA	19MT1A0511	IV/CSE	G.monika priya
4	GANDETI ASWINI	19MT1A0512	IV/CSE	G. Aswini
5	GIRADA SRAVANI	19MT1A0514	IV/CSE	G.Sravani
6	KADA PUJA	19MT1A0516	IV/CSE	K. Puja
7	KALAGA MOUNIKA	19MT1A0517	IV/CSE	K.mounika
8	KALAMATA GOWRI	19MT1A0518	IV/CSE	K. Gowri
9	KANCHARANA YAMINI	19MT1A0519	IV/CSE	K. Yamini
10	KANITHI BHARGAVI	19MT1A0520	IV/CSE	K.Bhargavi
11	KARANAM SIREESHA	19MT1A0521	IV/CSE	K. sireesha
12	KOKKIRI ANUSHA	19MT1A0522	IV/CSE	K. Anusha
13	KOLLI SRUTHI	19MT1A0523	IV/CSE	Kolli. Sruthi
14	KONNI LIKHITHA	19MT1A0525	IV/CSE	K.Li Khitha
15	KOTTURU ASWINI	19MT1A0526	IV/CSE	K. Aswini
16	KOVADA SPANDANA	19MT1A0527	IV/CSE	K. Spandana
17	POTHALA NAVYA SRI	19MT1A0540	IV/CSE	P. Navya Sri
18	AMPILLI SANGEETA	18MT1A0102	III/CE	A. Sangeeta
19	ARIKA PRESIKELLA	18MT1A0103	III/CE	A.Sangeetha
20	BELAMARA SAI SIREESHA	18MT1A0106	III/CE	B Sai Sa
21	BIDDIKA LAXMIPRASANNA	18MT1A0107	III/CE	B. Lakshmi Prasanna
22	CHINTADA SRAVANI	18MT1A0110	III/CE	C. SRAVani
23	DHANA LAKSHMI JAVAPU	18MT1A0113	III/CE	J. Dhanalakshmi
24	GURUGUBELLI BHARGAVI	18MT1A0116	III/CE	G. Bhargavi
25	JAMPA MEENA	18MT1A0117	III/CE	J. meena
26	KUMBIRIKI SANTHOSHI	18MT1A0119	III/CE	K. SANTHOSHI
27	KUNDANGI RAJINI	18MT1A0120	III/CE	K. Rajini
28	KUPPILI RAJASULOCHANA	18MT1A0121	III/CE	K. Rajasulochana
29	KURMANA KAVYA	18MT1A0122	III/CE	K. Kavya
30	LINGALA SANDHYA	18MT1A0123	III/CE	L. Sandhya

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S.No.	Name of Participant	Student Reg. No.	Year & Branch	Signature
31	SIRIPILLI DURGA BHAVANI	18MT1A0546	III/CSE	S.Durga Bhavani
32	SIRLA BHAVANIKUMARI	18MT1A0547	III/CSE	S. Bhavani Kumari
33	SRAVANI SANDHYA GANTYADA	18MT1A0548	III/CSE	Sravani Sandhya. G
34	TAMMIREDDY LAVANYA	18MT1A0550	III/CSE	T. Lavanya
35	TEEMARA HARIKA	18MT1A0552	III/CSE	T. HARIKA
36	URITI DIVYARANI	18MT1A0553	III/CSE	U. Divya Rani
37	URITI SIREESHA	18MT1A0554	III/CSE	U. SIReesha
38	YARABATI CHANDINI	18MT1A0558	III/CSE	Y. Chandini
39	SAMBANA GEETANJALI	18MT1A0543	III/CSE	S. Geethanjali
40	CHALLA SANTOSHI KUMARI	21MT1E0012	II/MBA	C. Santhoshi Kumari
41	DUNNA SUBHASRI	21MT1E0015	II/MBA	D. Subhasri
42	GEMBALI SARASWATHI	21MT1E0018	II/MBA	G. Saraswathi
43	JADDU RAMYA	21MT1E0020	II/MBA	J. Ramya
44	MANDAPAKA PALLAVI	21MT1E0032	II/MBA	M. Pallavi
45	MITTANA SUNEETHA	21MT1E0035	II/MBA	M. Suneetha
46	MOYYA SRAVANI	21MT1E0037	II/MBA	M. Sravani
47	MUDULA DIVYA	21MT1E0038	II/MBA	M. Divya
48	DABBEERU PADMAJA	21MT1E0039	II/MBA	D. Padmaja
49	PEDDINTI HARIKA	21MT1E0042	II/MBA	P. Harika
50	PILLALA SIREESHA	21MT1E0043	II/MBA	P. Sireesha
51	POTNURU SREEJA	21MT1E0047	II/MBA	P. Sreeja

V. Suryakala
CO ORDINATOR

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GENDER EQUALITY AT WORK PLACE EVENT

V. Suryakala
COORDINATOR

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Sri Venkateswara College of Engineering & Technology
ETCHERLA, Srikakulam-532410 (A.P)

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DATE:07 .11.2022

CIRCULAR

All the Women staff members and girl students are here by informed that the institute will organize an awareness program on "**Awareness on using DISA app**", on **14.11.2022**. So you are required to enroll your names with the program coordinator V.Suryakala (9542999192) and must assemble at Seminar Hall at 02:00PM Auditorium at 3:00Pm.

V. Suryakala
CO ORDINATOR

PRINCIPAL
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ETCHERLA, Srikakulam-532410 (A.P)
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Signature												

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PROGRAM REPORT

DATE:15.11.2022

Program Name : Awareness on using DISA app

Date of activity : 14.11.2022

Venue : Seminar Hall

Resource person : Mrs. D. Urmila.

Report:

Sri Venkateswara Engineering &Technology (SVCET) organized a program on 'Awareness on using DISA app'. In this program, speaker Mrs.D. Urmila ,Superintend of police addressed the gathering and explained the advantages using with Disha App to women community to protect themselves in difficulties . The police department staff demonstrated usage of Disa App.

V. Suryakala
COORDINATOR

PRINCIPAL
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Program Name : Awareness on using DISA app

Date : 12/11/2022

S.No.	Name of Participant	Student Reg. No.	Year & Branch	Signature
1	SANKILI SUVARNA	19MT1A0545	IV/CSE	S. Suvarna
2	SUNKARI KAVYA	19MT1A0546	IV/CSE	S. Kavya
3	SURAVARAPU SIVANI	19MT1A0547	IV/CSE	S. SIVANI
4	UPPADA LAKSHMI	19MT1A0549	IV/CSE	U. Lakshmi
5	URJANA SONIA	19MT1A0550	IV/CSE	U. Sonia
6	URLAPU SIREESHA	19MT1A0551	IV/CSE	U. Sireesha
7	VADDI SREELEKHA	19MT1A0552	IV/CSE	V. Sreelekha
8	VAVILAPALLI GAYATHRI	19MT1A0553	IV/CSE	V. Gayathri
9	YANDA SAROJINI	19MT1A0554	IV/CSE	Y. Sarojini
10	CHAM CHAM KUMARI	19MT1A0557	IV/CSE	Ch. Chamkumari
11	ANKITA KUMARI	19MT1A0558	IV/CSE	A. Kumari
12	RAKHI KUMARI	19MT1A0560	IV/CSE	R. Kumari
13	BANALA DHANALAKSHMI	19MT1A0402	IV/ECE	B. Dhanalakshmi
14	BEVARA NAGAMANI	19MT1A0404	IV/ECE	B. Nagamani
15	BONELA PRAMEELA RANI	19MT1A0405	IV/ECE	B. Prameela Rani
16	DANETI SWATHI	19MT1A0410	IV/ECE	D. Swathi
17	DEVARASETTI TANUJA	19MT1A0411	IV/ECE	D. Tanuja
18	DOLA PRASANTHI KUMARI	19MT1A0413	IV/ECE	D. Prasanthi
19	GARA LEELARANI	19MT1A0414	IV/ECE	G. Leelarani
20	GUNUPURU GOWREESWARI	19MT1A0416	IV/ECE	G. Gowreeswari
21	GUNUPURU SULOCHANA	19MT1A0417	IV/ECE	G. Sulochana
22	BHAIRI NEERAJA	19MT1A0202	IV/EEE	B. Neeraja
23	GODDU DIVYA	19MT1A0204	IV/EEE	G. Divya
24	LINGALA DEVI	19MT1A0206	IV/EEE	L. Devi
25	MUDDADA INDIRA	19MT1A0207	IV/EEE	M. Indira
26	PAILA SRAVANI	19MT1A0114	IV/CE	P. Sravani
27	PATTIKA KASTURI	19MT1A0117	IV/CE	P. Kasturi
28	RUGADANA SANGEETHA	19MT1A0119	IV/CE	R. Sangeetha
29	SAMBANA GEETANJALI	18MT1A0543	III/CSE	S. Geetha
30	SAVARA ANUSHA	18MT1A0545	III/CSE	S. Anusha

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S.No.	Name of Participant	Student Reg. No.	Year & Branch	Signature
31	BEVARA NAGAMANI	19MT1A0404	IV/ECE	B. Nagamani
32	BONELA PRAMEELA RANI	19MT1A0405	IV/ECE	B. Prameela Rani
33	DANETI SWATHI	19MT1A0410	IV/ECE	D. Swathi
34	DEVARASETTI TANUJA	19MT1A0411	IV/ECE	D. Tanuja
35	DOLA PRASANTHI KUMARI	19MT1A0413	IV/ECE	D. Prasanthi kumari
36	GARA LEELARANI	19MT1A0414	IV/ECE	G. Leelarani
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38	GUNUPURU SULOCHANA	19MT1A0417	IV/ECE	G. Sulochana
39	MAMIDI LAVANYA	19MT1A0423	IV/ECE	M. Lavanya
40	UPPADA LAKSHMI	19MT1A0549	IV/CSE	U. Lakshmi
41	URJANA SONIA	19MT1A0550	IV/CSE	U. Sonia
42	URLAPU SIREESHA	19MT1A0551	IV/CSE	U. Sireesha
43	VADDI SREELEKHA	19MT1A0552	IV/CSE	V. Sreelekha
44	AKUNDIRATNASREE	21MT1E0001	II / MBA	A. Ratnasree
45	ANARASI ALISHA PATRO	21MT1E0004	II / MBA	A. Alisha Patro
46	ANUSHA PANDEY	21MT1E0005	II / MBA	Anusha Pandey
47	BANGARU SURYA BHARGAVI	21MT1E0006	II / MBA	B. Bhargavi
48	ANTHARAKONDA JYOTHI	21MT1E0008	II / MBA	A. Jyothi
49	BEVARA NAGAMANI	19MT1A0404	IV/ECE	B. Nagamani

V. Suryakala
CO ORDINATOR

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AWARENESS ON USING DISA APP EVENT

V. Suryakala
COORDINATOR

PRINCIPAL

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DATE: 10.10.2022

CIRCULAR

All the Women staff members and girl students are here by informed that, the institute is going to celebrate "**World Teacher's Day**" in memoriam of **first lady teacher Savitribai Phule** on **15.10.2022**. So you are required to enroll your names with the program coordinator V.Suryakala (9542999192) and must assemble at Seminar Hall at 02:00PM.

V. Surya Kala
CO ORDINATOR

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Signature												

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PROGRAM REPORT

DATE: 16.10.2022

Program Name : World Teachers Day

Date of activity : **15.10.2022**

Venue : Seminar Hall

Resource person : Dr.K. Rama Jyothi.Associate Professor, Lendi College

Report:

Sri Venkateswara Engineering &Technology (SVCET) organized World Teachers Day. In this program Dr.K. Rama Jyothi.Associate Professor addressed about our first lady teacher Savitri bai phule and her significance. She elaborated that Teachers play a vital role in shaping future of students.In this program all the woman faculty members girl students participated .The organizer v .surya kala madam thanked the resource person as well as students.

V. Surya Kala
COORDINATOR

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Program Name : World Teacher's Day

Date : 15/10/2022

S.No.	Name of Participant	Student Reg. No.	Year & Branch	Signature
1	AMPILLI SANGEETA	18MT1A0102	III/CE	A. Sangeeta
2	ARIKA PRESIKELLA	18MT1A0103	III/CE	A. Presikella
3	BELAMARA SAI SIREESHA	18MT1A0106	III/CE	B. Sai Sireesha
4	BIDDIKA LAXMIPRASANNA	18MT1A0107	III/CE	B. Laxmi Prasanna
5	CHINTADA SRAVANI	18MT1A0110	III/CE	C. Sravani
6	DHANA LAKSHMI JAVAPU	18MT1A0113	III/CE	J. Dhana Lakshmi
7	GURUGUBELLI BHARGAVI	18MT1A0116	III/CE	G. Bhargavi
8	JAMPA MEENA	18MT1A0117	III/CE	J. Meena
9	KUMBIRIKI SANTHOSHI	18MT1A0119	III/CE	K. Santhoshi
10	KUNDANGI RAJINI	18MT1A0120	III/CE	K. Rajini
11	KUPPILI RAJASULOCHANA	18MT1A0121	III/CE	K. Raja Sulochana
12	KURMANA KAVYA	18MT1A0122	III/CE	K. Kavya
13	LINGALA SANDHYA	18MT1A0123	III/CE	L. Sandhya
14	MALATHI YARAGADA	18MT1A0124	III/CE	M. Yaragada
15	NIMMAKA PRAMEELA	18MT1A0125	III/CE	N. Prameela
16	SAMPADA RAO VAMSI VANDANA PRIYA	18MT1A0128	III/CE	S.V.V. Vandana priya
17	SAVARA MEENA	18MT1A0132	III/CE	S. Meena
18	SAVARA PARSHAMI	18MT1A0133	III/CE	S. Parshami
19	SAVARA SUBHADRI	18MT1A0134	III/CE	S. Subhadri
20	THUNDAKA KEERTHI	18MT1A0137	III/CE	T. Keerthi
21	VOOYAKA SUMONI	18MT1A0140	III/CE	V. Sumoni
22	YARADI NIRMALA	18MT1A0141	III/CE	Y. Nirmala
23	BARATAM ANUSHA	18MT1A0201	III/EEE	B. Anusha
24	GOVVADA PAVANI	18MT1A0202	III/EEE	G. Pavani
25	MAMIDI THRILOVANI	18MT1A0205	III/EEE	M. Thrilovani
26	BHAIRI NEERAJA	19MT1A0202	IV/EEE	B. Neeraja
27	GODDU DIVYA	19MT1A0204	IV/EEE	G. Divya
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30	BANALA DHANALAKSHMI	19MT1A0402	IV/ECE	B. Dhanalakshmi

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49	BEVARA NAGAMANI	19MT1A0404	IV/ECE	B. Nagamani

V. Suryakala
CO ORDINATOR

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WORLD TEACHERS DAY EVENT

V. Surya Kala
COORDINATOR

PRINCIPAL

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DATE: 03.10.2022

CIRCULAR

All the Women staff members and girl students are here by informed that the institute will organize a program on "**International Girl Child day**", on **11.10.2022**. So you are required to enroll your names with the program coordinator V.Suryakala (9542999192) and must assemble at Auditorium at 02:00PM.

V.Suryakala
CO ORDINATOR

PRINCIPAL
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Signature												

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PROGRAM REPORT

DATE: 12.10.2022

Program Name : International girl child day

Date of activity : 11.10.2022

Venue : Auditorium

Resource person : M.Krishna Veni , Principal of Govt Junior college(Girls),Srikakulam

Report:

Sri Venkateswara Engineering &Technology (SVCET) organized International girl child day. In this program Chief guest Dr. M.Krishna Veni addressed the gathering and explained the importance of girl child and also mentioned about in equalities faced by girls in the country and told about the importance of female education, health and nutrition and she also explained how government was helping girl child. At the end of program, our college principal Dr.S. C. V. Ramana murty Naidu thanked the resource person and gathering.

V. Surya Kala
CO ORDINATOR

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Program Name : International Girl Child day

Date : 11/10/2022

S.No.	Name of Participant	Student Reg. No.	Year & Branch	Signature
1	KARANAM SIREESHA	19MT1A0521	IV/CSE	K. Sireesha
2	KOKKIRI ANUSHA	19MT1A0522	IV/CSE	K. Anusha
3	KOLLI SRUTHI	19MT1A0523	IV/CSE	K. Sruthi
4	KONNI LIKHITHA	19MT1A0525	IV/CSE	K. LIKHITHA
5	KOTTURU ASWINI	19MT1A0526	IV/CSE	K. Aswini
6	KOVADA SPANDANA	19MT1A0527	IV/CSE	K. Spandana
7	KURMAPU PRAMEELA	19MT1A0528	IV/CSE	K. Prameela
8	LANDA SRAVANI	19MT1A0529	IV/CSE	L. SRavani
9	MEESALA SAI SWETHA	19MT1A0530	IV/CSE	M. Sai Swetha
10	MENDA CHANDINI	19MT1A0531	IV/CSE	Me Chandini
11	NALLA JHANSI	19MT1A0534	IV/CSE	Nalla. Jhansi
12	PALAVALASA SWAPNA RANI	19MT1A0536	IV/CSE	P. Swapna rani
13	POTHALA NAVYA SRI	19MT1A0540	IV/CSE	P. Navya sri
14	POTNURU DEEPIKA	19MT1A0541	IV/CSE	P. Deepika
15	SADASIVUNI SURYA MOUNIKA	19MT1A0543	IV/CSE	Surya Mounika
16	AGADALA ANNAPURNA	18MT1A0501	III/CSE	A. Annapurna
17	ALTHI NAVYA	18MT1A0502	III/CSE	A. Navya
18	ANDHAVARAPU VIDYA LIKITHA	18MT1A0504	III/CSE	A. Vidya likitha
19	BALIVADA PRIYANKA	18MT1A0505	III/CSE	B. PRIyanka
20	BAMMIDI RESHMA	18MT1A0506	III/CSE	B. Reshma
21	BARATAM KAVYA SREE	18MT1A0507	III/CSE	B. Kavya Sree
22	BAVANA RUCHITA	18MT1A0509	III/CSE	B. Ruchita
23	CHODAVARAPU SUMATHI	18MT1A0512	III/CSE	C. Sumathi
24	DARRU PRIYANKA	18MT1A0513	III/CSE	D. Priyanka
25	DORA YAMINI	18MT1A0515	III/CSE	D. Yamini
26	GANDEM BHARGAVI	18MT1A0516	III/CSE	G. Bhargavi
27	GARA RAMYA	18MT1A0518	III/CSE	G. Ramya
28	GINNI SIREESHA	18MT1A0519	III/CSE	G. Sireesha
29	GORLE ANNAPURNA	18MT1A0520	III/CSE	G. Annapu
30	GORLE PREETHI	18MT1A0521	III/CSE	G. Preethi

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S.No.	Name of Participant	Student Reg. No.	Year & Branch	Signature
31	YALAGADA RENUKA	18MT1A0439	III/ECE	Y. Renuka
32	YANDA MOUNIKA	18MT1A0441	III/ECE	Y. Mounika
33	YEJJALA GAYATHRI	18MT1A0442	III/ECE	Y. Gayathri
34	SEERA HARITHA SREE	18MT1A0444	III/ECE	S.H. Sree
35	PINIMINTI VENKATALAKSHMI	18MT1A0209	III/EEE	P. Venkatalakshmi
36	SANAPALA PAVANI	18MT1A0211	III/EEE	S. Pavani
37	SEERA HARITHASREE	18MT1A0212	III/EEE	S. Harithasree
38	TAMMINAINA VANITHASRI	18MT1A0214	III/EEE	T. Vanithasri
39	VARADI GIREESH	18MT1A0215	III/EEE	V. Gireesh
40	POTNURU SREEJA	21MT1E0047	II/MBA	P. Sreesha
41	PUSARALLA DEVI	21MT1E0049	II/MBA	P. Devi
42	SANAPALA HIMASRI	21MT1E0054	II/MBA	S. Himasri
43	SEERA VAGDEVI	21MT1E0057	II/MBA	S. Vagdevi
44	SHIVANI SAHU	21MT1E0058	II/MBA	S. Sahu
45	SIMHADRI PUSHPA LATHA	21MT1E0059	II/MBA	S.P. Latha
46	SOMINAYANA PRASUNA	21MT1E0060	II/MBA	S. Prasuna
47	TELIDEVARAPALLI MADHULATHA	21MT1E0064	II/MBA	P. Madhulatha
48	UTLA SRAVYA	21MT1E0065	II/MBA	U. Sravya
49	G HARITA	21MT1E0082	II/MBA	G. Haritha
50	TALABHAKTULA CHANDINI	21MT1E0085	II/MBA	T. Chandini

V-Suryakala
CO ORDINATOR

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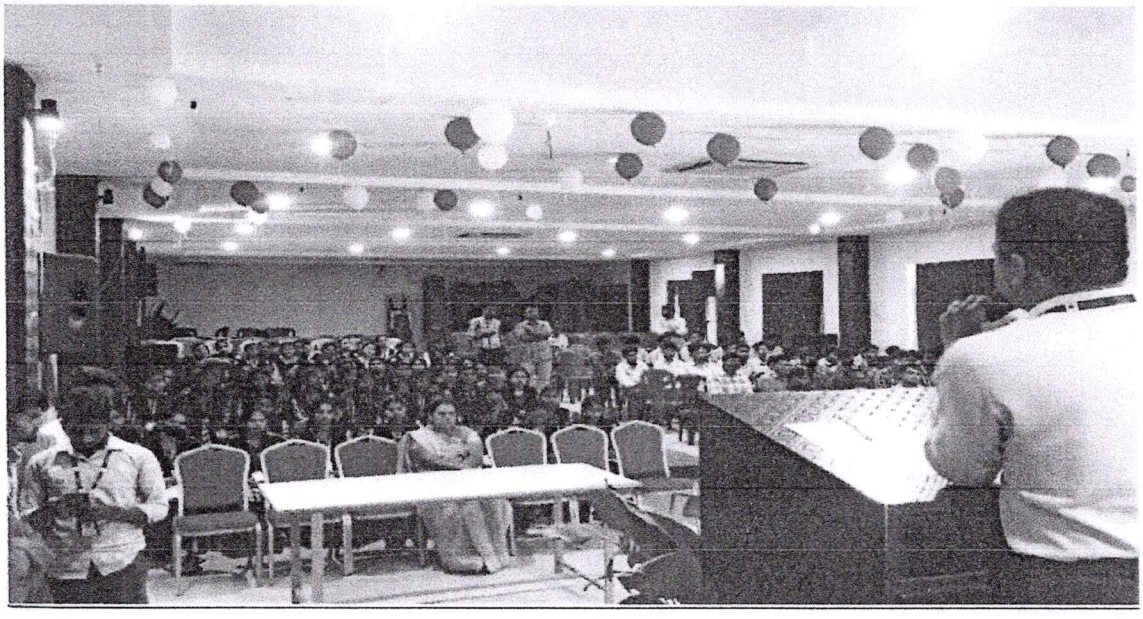
INTERNATIONAL GIRL CHILD DAY EVENT



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DATE: 21.06.2022

CIRCULAR

All the Women staff members and girl students are here by informed that, ECE Department will organize a event of 'Cultural Competitions for women' on **27.06.2022** .So you are required to enroll your names with the program coordinator V.Suryakala (9542999192) and must assemble at Seminar Hall at 02:00PM.

V.Suryakala
CO ORDINATOR

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PROGRAM REPORT

DATE: 28.06.2022

Program Name : Cultural Competitions for women

Date of activity : 27.06.2022

Venue : Seminar Hall

Organiser : V.Surya kala Ece Department

Report:

Sri Venkateswara Engineering &Technology (SVCET) Students and Staff participated with lot of enthusiasm in the event of "Cultural Competitions for women". Principal Dr.S.C.V. Ramana Murthy Naidu acted as chief guest at the validatry function. He addressed the gathering and explained the prominence of conducting such cultural events. He further added the sense of integration among women would be possible with the help of conducting cultural events in any organization. The senior faculty member V. Surya kala madam thanked the participation.

V. Surya kala
COORDINATOR

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ETCHERLA, Srikakulam Dist.-532410 (A.P)
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List of Participants

Program Name : Cultural Competitions for women

Date : 27/06/2022

S.No.	Name of Participant	Student Reg. No.	Year & Branch	Signature
1	PAILA SRAVANI	19MT1A0114	IV/CE	P. Sravani
2	PATTIKA KASTURI	19MT1A0117	IV/CE	P. Kasturi
3	RELLA SANTHOSH KUMAR	19MT1A0118	IV/CE	R. Santhosh Kumar
4	RUGADANA SANGEETHA	19MT1A0119	IV/CE	R. Sangeetha
5	MANISHA KUMARI	19MT1A0131	IV/CE	M. kumari
6	BHAIRI NEERAJA	19MT1A0202	IV/EEE	B. Neeraja
7	GODDU DIVYA	19MT1A0204	IV/EEE	G. Divya
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15	DOLA PRASANTHI KUMARI	19MT1A0413	IV/ECE	D. prasanth kumari
16	GARA LEELARANI	19MT1A0414	IV/ECE	G. Leelarani
17	GUNUPURU GOWREESWARI	19MT1A0416	IV/ECE	G. Gowreeswari
18	GUNUPURU SULOCHANA	19MT1A0417	IV/ECE	G. Sulochana
19	MAMIDI LAVANYA	19MT1A0423	IV/ECE	M. lavanya
20	MANDALA YAMUNA	19MT1A0424	IV/ECE	M. Yamuna
21	PATNANA SANDHYARANI	19MT1A0427	IV/ECE	P. Sandhya Rani
22	POLIPALLI YASHASWANI	19MT1A0428	IV/ECE	P. YASHASWANI
23	POTNURU PRIYANKA	19MT1A0430	IV/ECE	P. priyanka
24	REKHALA SWATHI	19MT1A0431	IV/ECE	R. Swathi
25	SANGIREDDI SAILAKSHMI	19MT1A0432	IV/ECE	S. Sai lakshmi
26	SATHIVADA SAI BHAVANIKA	19MT1A0433	IV/ECE	S. Sai bhavanika
27	ULLAKULA JHANSI	19MT1A0436	IV/ECE	U. Jhansi
28	ABOTHULA SAI THUNAJA	19MT1A0501	IV/CSE	A. Sai thunaja
29	ADAPAKA PURNIMA	19MT1A0502	IV/CSE	A. purnima
30	CHINTADA SHARMILA	19MT1A0505	IV/CSE	CH. Sharmila

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S.No.	Name of Participant	Student Reg. No.	Year & Branch	Signature
31	DHAVALA KAVYA	19MT1A0508	IV/CSE	D. Kavya
32	DHAVALA SAI SIREESHA	19MT1A0509	IV/CSE	D. Sai Sireesha
33	GAINEDI MONIKA PRIYA	19MT1A0511	IV/CSE	G. Monika priya
34	GANDETI ASWINI	19MT1A0512	IV/CSE	G. Aswini
35	GIRADA SRAVANI	19MT1A0514	IV/CSE	G. SRavani
36	KADA PUJA	19MT1A0516	IV/CSE	K. Puja
37	KALAGA MOUNIKA	19MT1A0517	IV/CSE	K. Mounika
38	KALAMATA GOWRI	19MT1A0518	IV/CSE	K. Gowri
39	KANCHARANA YAMINI	19MT1A0519	IV/CSE	K. Yamini
40	KANITHI BHARGAVI	19MT1A0520	IV/CSE	K. Bhargavi
41	KARANAM SIREESHA	19MT1A0521	IV/CSE	K. Sireesha
42	KOKKIRI ANUSHA	19MT1A0522	IV/CSE	K. Anusha
43	KOLLI SRUTHI	19MT1A0523	IV/CSE	K. sruthi
44	KONNI LIKHITHA	19MT1A0525	IV/CSE	K. Likhitha
45	KOTTURU ASWINI	19MT1A0526	IV/CSE	K. Aswini
46	KOVADA SPANDANA	19MT1A0527	IV/CSE	K. Spandana
47	POTHALA NAVYA SRI	19MT1A0540	IV/CSE	P. Navya Sri
48	POTNURU DEEPIKA	19MT1A0541	IV/CSE	P. Deepika
49	SADASIVUNI SURYA MOUNIKA	19MT1A0543	IV/CSE	S. Suryamounika
50	SANJANA MADABATTULA	19MT1A0544	IV/CSE	SANJANA
51	SANKILI SUVARNA	19MT1A0545	IV/CSE	S. Suvarna
52	SUNKARI KAVYA	19MT1A0546	IV/CSE	S. Kavya
53	SURAVARAPU SIVANI	19MT1A0547	IV/CSE	S. Sivani

V. Suryakala
CO ORDINATOR

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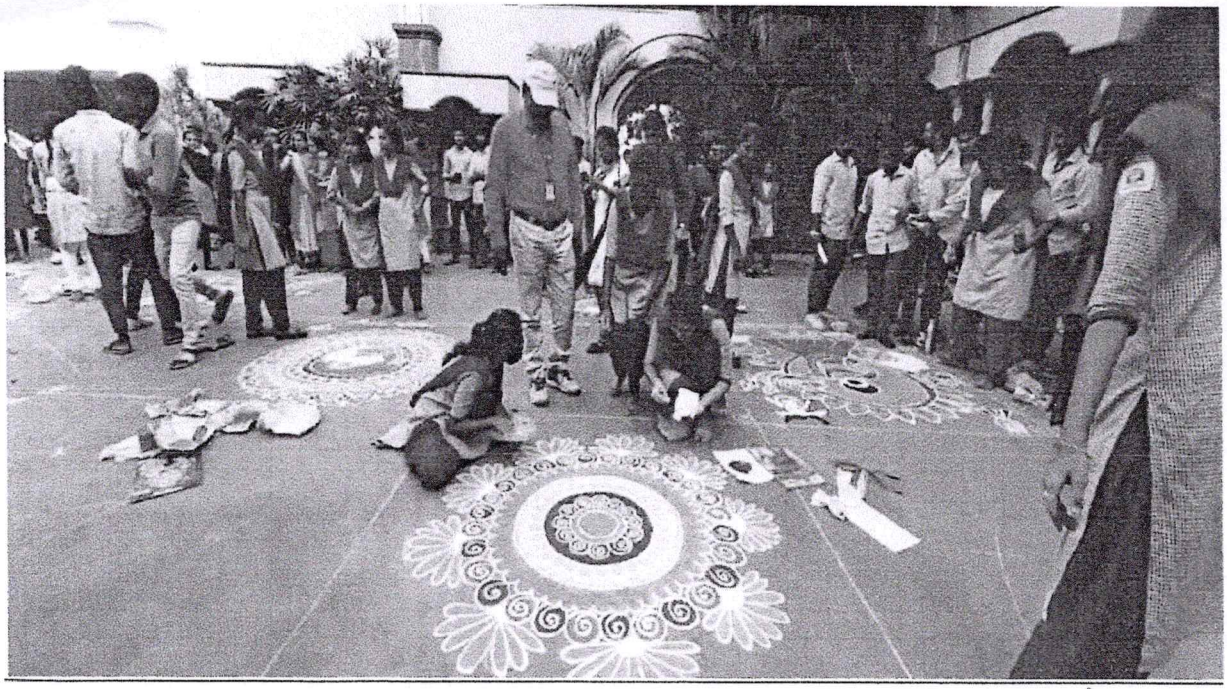
CULTURAL COMPETITIONS FOR WOMEN



V. Suryakala
COORDINATOR

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List of Extension Activities

A.Y.:2022-2023

S.NO.	Name of the Programme	Date	No. of Participants	Name of the Collaborative Agency
1	World Environment Day- Sapling Plantation	05.06.2022	88	Lingalavalasa Village - Etcherla Panchayat
2	Stop Usage Of Plastic - Say No To Plastic	11.07.2022	63	Chilakapalem Village -Etcherla Panchayat
3	Swatch Bharat - Cleaning Program	21.10.2022	114	Etcherla Panchayat
4	National Unity Day – Rally	31.10.2022	63	Chilakapalem Village -Etcherla Panchayat
5	Blood Donation- Ys Jagan Mohan Reddy Birthday	21.12.2022	103	SVCET - Etcherla Panchayat
6	National Voters Day- Voting Awareness	25.01.2023	88	Etcherla Panchayat
7	Road Safety – Awareness Rally	07.02.2023	78	Srikakulam Municipality
8	Medical Campaign	28.04.2023	88	SSR Puram - Etcherla Panchayat

Program Officer **IQAC** **Principal**

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Date: 01.06.2022

CIRCULAR

This is to inform all the students and staff that on account of **"WORLD ENVIRONMENT DAY"** our college NSS Unit is going to conduct a **"SAPLING PLANTATION - PROGRAM"** in Lingalavalasa village on 05.06.2022. Hence interested students can register their names at NSS PO, Mr. Nagaraju on or before 04.06.2022.

Nagaraju
NSS PO

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Copy Submitted To: Honorable Management for Favor of Information:

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DATE: 07.06.2022

Program Report	
Name of the Event	**WORLD ENVIRONMENT DAY- SAPLING PLANTATION**
Event start date	05.06.2022
Event end date	05.06.2022
Place of the activity	LINGALAVALASA Village
No of Participants	88
Collaboration	ETCHERLA PANCHAYAT
Description	We @SVCET-NSS UNIT our sapling plantation program here in Lingalavalasa village. Today, we gather to take meaningful action towards a greener and more sustainable future by planting saplings that will grow into trees and contribute to the well-being of our environment. Planting trees is one of the most effective ways to combat climate change, improve air quality, and enhance biodiversity. Trees provide oxygen, reduce carbon dioxide levels, prevent soil erosion, and offer habitats for countless species of wildlife. Our goal today is to plant as many saplings as possible and to ensure they are cared for as they grow. This initiative not only beautifies our surroundings but also instills a sense of responsibility and environmental stewardship within our community.

Nagaraju
NSS PO

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Name of the Event: WORLD ENIVIRONMENT DAY

Date: 05.06.2022

List of Participants

S. No	Name of the Student	Year &Sem	Signature
1.	BANKURU DIVYADEEPIKA	I/CIVIL	B. Divya deepika
2.	BONAM PRIYANKA	I/CIVIL	B. Priyanka
3.	CHINNALA NARAYANA RAO	I/CIVIL	C. Narayanarao
4.	CHINNALAHARI KRISHNA	I/CIVIL	C. Krishna
5.	GANTASALA SATEESH	I/CIVIL	G. Sateesh
6.	GURUGUBELLI PRAVEEN	I/CIVIL	G. Praveen
7.	KARIGGI GANESH	I/CIVIL	G. Ganesh
8.	KONDAGORRI KUMARA SWAMY	I/CIVIL	K. Kumara Swamy
9.	KOYYAN AABHISHEK	I/CIVIL	K. aabhishek
10.	MAJJI RAMBABU	I/CIVIL	M. Rambabu
11.	MALUGU NARENDRA	I/CIVIL	M. Narendra
12.	MOJJADA MAHESH	I/CIVIL	M. Mahesh
13.	MUDDAPU MOHANARAO	I/CIVIL	M. Mohana Rao.
14.	PAILA SRAVANI	I/CIVIL	P. Sravani
15.	PAPARAO CHALLA	I/CIVIL	P. Chalam
16.	PASUPUREDDY ESWARA RAO	I/CIVIL	P. Eswar Rao
17.	PATTIKA KASTURI	I/CIVIL	P. Kasturi
18.	RELLA SANTHOSH KUMAR	I/CIVIL	R. Santhosh kumar
19.	B KISHORE KUMAR	I/EEE	B. Kishore kumar
20.	BHAIRI NEERAJA	I/EEE	B. Neeraja.
21.	CHODAVARAPU BHARGAVA KUMAR	I/EEE	C. Bhargava kumar
22.	GODDU DIVYA	I/EEE	G. Divya.
23.	KINJARAPU SAI KUMAR	I/EEE	K. S. Kumar.
24.	LINGALA DEVI	I/EEE	L. Devi
25.	MUDDADA INDIRA	I/EEE	M. Indira.
26.	MURAMARLA VENKATALAXMI	I/EEE	M. Venkatalaxmi
27.	POLIREDDI SRINIVASA RAO	I/EEE	P. Srinivasarao
28.	SEERAMSETTY GOWTHAM	I/EEE	S. Gowtham
29.	SURAJBHAN SINGH RATHOR	I/EEE	S. Singh
30.	ABHISHEK KUMAR MAHTO	I/EEE	A. Kumar
31.	RAUSHAN KUMAR	I/EEE	R. Kumar
32.	ALLUPILLI SIMHACHALAM	I/MECH	A. Simhachalam
33.	ALUBILLI UPENDRA	I/MECH	A. Upendra
34.	BALAGA SASI BHUSHANA RAO	I/MECH	B. Sasi
35.	BONDAPALLI SRINU	I/MECH	B. Srinu
36.	BONELA JEEVAN KUMAR	I/MECH	B. Jeevan
37.	BUGATA AVINASH	I/MECH	B. Avinash
38.	CHUKKA MOHANKRISHNA	I/MECH	C. Mohankrishna
39.	DAKKATA TIRUPATHI	I/MECH	D. Tirupati
40.	GULLA KARTHIK	I/MECH	G. Karthik
41.	GUNA DHANUNJAYA	I/MECH	G. Karthik
42.	GUNUPURU UPENDRA	I/MECH	G. Upendra
43.	ARANGI SURESH	I/ECE	A. Suresh

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44.	BANALA DHANALAKSHMI	I/ECE	B. Dhanala
45.	BAVIRI RAJESWARI	I/ECE	B. Rajeshwari
46.	BEVARA NAGAMANI	I/ECE	B. Nagamani
47.	BONELA PRAMEELA RANI	I/ECE	B. Prameela rani
48.	BONGU MANIKANTA REDDY	I/ECE	B. Manikanta
49.	BURADA SAI SEETHA RAM MOHAN	I/ECE	B. SaiSeethaRammohan
50.	CHENCHALA DINESH	I/ECE	C. Dinesh
51.	CHINTADA SATYA PRASAD	I/ECE	C. Satya
52.	DANETI SWATHI	I/ECE	D. Swathi
53.	KOLLI SRUTHI	I/CSE	K. Sruthi
54.	KONDA SAI SAMPATH KUMAR	I/CSE	Sampath kumar
55.	KONNI LIKHITHA	I/CSE	K. Likha
56.	KOTTURU ASWINI	I/CSE	K. Aswini
57.	KOVADA SPANDANA	I/CSE	K. Aswini
58.	KURMAPU PRAMEELA	I/CSE	K. Prameela
59.	LANDA SRAVANI	I/CSE	L. Sravani
60.	MEESALA SAI SWETHA	I/CSE	Swetha
61.	MENDA CHANDINI	I/CSE	M. Chandini
62.	MUKKALA UDAY SHANKAR	I/CSE	M. Uday shankar
63.	MYLAPALLI ABHISHAIK VICTOR	I/CSE	Abhishaik victor
64.	NALLA JHANSI	I/CSE	N. Jhansi
65.	NUKA SANTOSH KUMAR	I/CSE	N. Santosh
66.	PALAVALASA SWAPNA RANI	I/CSE	P. Swapna Rani
67.	PALLI VINAY	I/CSE	P. Vinay
68.	PANTALA ANITHA	I/CSE	P. Anitha
69.	PENUGUDURU VASUDEVA RAO	I/CSE	P. Vasudeva Rao
70.	POTHALA NAVYA SRI	I/CSE	P. Navya
71.	AMPILLI SANGEETA	II/CIVIL	A. SANGeetha
72.	ARIKA PRESIKELLA	II/CIVIL	A. Presikella
73.	BAGADI RAMAKRISHNA	II/CIVIL	Ramakrishna
74.	BAMMIDI LAXMANA	II/CIVIL	B. Laxmana
75.	BELAMARA SAI SIREESHA	II/CIVIL	B. Sireesha
76.	BIDDIKA LAXMIPRASANNA	II/CIVIL	B. Laxmipras
77.	BURALLA MADHU KUMAR	II/CIVIL	B. Madhukireesha
78.	CHINNALA JAGADESWARA RAO	II/CIVIL	C. Jagadeswararao
79.	CHINTADA SRAVANI	II/CIVIL	Ch. Sravani
80.	CHINTU HARISH	II/CIVIL	C. Harish
81.	DEVAKIVADA DHARMA TEJA	II/CIVIL	D. Dharmateja
82.	DHANA LAKSHMI JAVAPU	II/CIVIL	Dhanalakshmi
83.	DUBBA AASISH KUMAR	II/CIVIL	D. Aasish
84.	MAMIDI THRILOVANI	II/EEE	M. Thri
85.	MUGADA DURGAPRASAD	II/EEE	M. Durgaprasad
86.	MUNAGAVALASA UMESHBABU	II/EEE	M. Umesh Babu
87.	PENUGUDURU NAVEEN	II/EEE	P. Naveen
88.	PINIMINTI VENKATALAKSHMI	II/EEE	P. Venkatalakshmi

Nagaraju
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Date: 05.07.2022

CIRCULAR

This is to inform all the students and staff that on account of **"STOP USAGE .OF PLASTIC"** our college NSS Unit is going to conduct Rally on **"SAY NO TO PLASTIC"** SVCET to Chilakapalem village on 11.07.2022. Hence interested students can register their names at NSS PO, Mr. Nagaraju on or before 10.07.2022.

Nagaraju
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Signature												

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DATE: 12.07.2022

Program Report	
Name of the Event	**STOP USAGE OF PLASTIC- SAY NO TO PLASTIC**
Event start date	11.07.2022
Event end date	11.07.2022
Place of the activity	CHILAKAPALEM Village
No of Participants	63
Collaboration	SVCET – NSS UNIT
Description	We @SVCET-NSS UNIT "Say No to Plastic" rally, marching from the SVCET campus to Chilakapalem village. This rally aimed to raise awareness about the detrimental effects of plastic pollution and to encourage the adoption of eco-friendly alternatives. Participants carried banners and chanted slogans emphasizing the importance of reducing plastic use to protect the environment. The rally received enthusiastic support from local residents, highlighting the community's commitment to creating a cleaner, greener future. This event underscores our collective responsibility towards sustainable living and environmental conservation.

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Name of the Event: STOP USAGE OF PLASTIC

Date: 11.07.2022

List of Participants

S. No	Name of the Student	Year &Sem	Signature
1.	NATTI NARESH	I/MECH	N. Naresh
2.	NELLIPARTI HEMANTH	I/MECH	N. Hemanth
3.	PENUMAJJI KISHOR	I/MECH	P. Kishor
4.	RAMPATRUNI HARIKRISHNA	I/MECH	R. Hari
5.	RATNALA RUSHI	I/MECH	R. Rushi
6.	SAMPATIRAO HARSHA VARDHAN	I/MECH	S. Harshavardhan
7.	SAVARA MANOJ KUMAR	I/MECH	S. manoj kumar
8.	SELAGALA VENKATARAMANA	I/MECH	S. Venkataramana
9.	TIMMANA ESWARA RAO	I/MECH	T. Eswara Rao
10.	BONAM PRIYANKA	I/CIVIL	B. Priyanka
11.	CHINNALA NARAYANA RAO	I/CIVIL	Ch. Narayana Rao
12.	CHINNALAHARI KRISHNA	I/CIVIL	C. Krishna
13.	GANTASALA SATEESH	I/CIVIL	G. Sateesh
14.	GURUGUBELLI PRAVEEN	I/CIVIL	G. Praveen
15.	KARIGGI GANESH	I/CIVIL	K. Ganesh
16.	KONDAGORRI KUMARA SWAMY	I/CIVIL	K. Kumara Swamy
17.	KOYYAN AABHISHEK	I/CIVIL	K. Aabhishek
18.	MAJJI RAMBABU	I/CIVIL	M. Rambabu
19.	MALUGU NARENDRA	I/CIVIL	M. Rambabu
20.	BHAIRI NEERAJA	I/MECH	B. Neeraja
21.	CHODAVARAPU BHARGAVA KUMAR	I/MECH	Ch. Bhargava Kumar
22.	GODDU DIVYA	I/MECH	G. Divya
23.	KINJARAPU SAI KUMAR	I/MECH	K. Sai Kumar
24.	LINGALA DEVI	I/MECH	L. Devi
25.	MUDDADA INDIRA	I/MECH	M. Indira
26.	MURAMARLA VENKATALAXMI	I/MECH	M. Venkatalakmi
27.	POLIREDDI SRINIVASA RAO	I/MECH	P. Srinivasa Rao
28.	SEERAMSETTY GOWTHAM	I/MECH	S. Gowtham
29.	GARA LEELARANI	I/ECE	G. Leelarani
30.	GUNA JAYARAM	I/ECE	G. Jayaram
31.	GUNUPURU GOWREESWARI	I/ECE	G. Gowreeswari
32.	GUNUPURU SULOCHANA	I/ECE	G. Sulochana
33.	GURUGUBELLI BALA KRISHNA RAO	I/ECE	G. Balakrishna Rao
34.	ILLIPOTHI SAI MOHAN	I/ECE	I. Sai Mohan
35.	JEEVAN SHREE PANIGRAHI	I/ECE	P. Jeevan Shree
36.	KONCHADA YOGESWARI	I/ECE	K. Yogeswari
37.	LENKA NAVEEN KUMAR	I/ECE	L. Naveen Kumar
38.	MAMIDI LAVANYA	I/ECE	M. Lavanya
39.	MANDALA YAMUNA	I/ECE	M. Yamuna

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40.	GARA LEELARANI	I/ECE	G Leela
41.	GUNA JAYARAM	I/ECE	G. Jayaram
42.	GUNUPURU GOWREESWARI	I/ECE	G. Gowrey
43.	ADAPAKA PURNIMA	I/CSE	PURNIMA
44.	BADE CHINNI	I/CSE	B. CHINNI
45.	CHINNALA SAIKUMARI	I/CSE	C. Saikumari
46.	CHINTADA SHARMILA	I/CSE	C. Sharmila
47.	CHINTALA MOUNIKA	I/CSE	Ch. mounika
48.	CHODIPILLI ROHIT	I/CSE	Rohit
49.	DHAVALA KAVYA	I/CSE	D. KAVYA
50.	DHAVALA SAI SIREESHA	I/CSE	D. Saisireesha
51.	DUPPATLA NIKHIL	I/CSE	D. NIKHIL
52.	GAINEDI MONIKA PRIYA	I/CSE	G. Monika Priya
53.	GANDETI ASWINI	I/CSE	G. Aswini
54.	GEDELA RAJA SEKHAR	I/CSE	G. RAJA SEKHAR
55.	GIRADA SRAVANI	I/CSE	Sravani
56.	GORUSU PAVAN	I/CSE	G. Pavan
57.	KADA PUJA	I/CSE	K. Puja
58.	KALAGA MOUNIKA	I/CSE	K. Mounika
59.	DUKKA DEVI	II/ECE	D. Devi
60.	EASAI BHAGYA LAXMI	II/ECE	Laxmi
61.	GEDALA MARY MANI	II/ECE	G. MARY MANI
62.	GUNA TEJESWARI	II/ECE	G. Tejeswari
63.	GUNTREDDI SUSMITHA	II/ECE	G. Susmitha

Nagaraju
NSS PO

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COLLEGE OF ENGINEERING & TECHNOLOGY
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Office : +91 9705576693, email: principal_svcet@yahoo.com, website: www.svcet.info

Date:17-12-2022

CIRCULAR

This is to inform all the students and staff that on account of **"Y S JAGAN MOHAN REDDY BIRTHDAY – AP CHIEF MINSTER"** on 21-12-2022. our college NSS Unit is going to conduct **"BLOOD DONATION CAMPAIGN"**. Hence interested students can register their names at NSSPO Mr. Nagaraju on or before 20-12-2022.

Nagaraju
NSSPO

Principal
PRINCIPAL
Sri Venkateswara College of Engineering & Technology
ETCHERLA, Srikakulam-532410 (A.P.)

Copy to: Honorable Management for favor of information

Department	IQAC	CE	EEE	ME	ECE	CSE	AIML	BS&H	MBA	OFFICE	NOTICE BOARD	FILE
Signature												

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Date:22-12-2022

Program Report

Name of the Event	**Y S JAGAN MOHAN REDDY BIRTHDAY – BLOOD DONATION**
Event start date	21-12-2022
Event end date	21-12-2022
Place of the activity	ETCHERLA
No of Participants	103
Collaboration	SVCET – NSS UNIT
Description	On the occasion of Jagan Mohan Reddy's birthday, our blood donation campaign aims to honor his commitment to public service and community welfare. Organized by the Program Officer, this initiative seeks to mobilize volunteers and donors to contribute to a noble cause, addressing the critical need for blood in hospitals. Through this campaign, we aspire to save lives and foster a spirit of solidarity and generosity within the community. Join us in this meaningful endeavor and make a difference on this special day.

NSS PO

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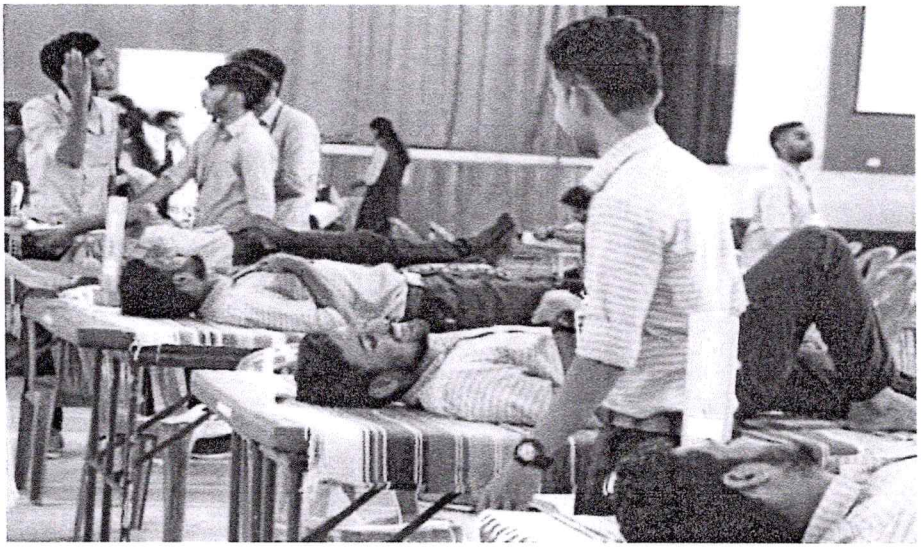

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Name of the Event: YS JAGAN MOHAN REDDY BIRTHDAY – BLOOD DONATION

Date: 21.12.2022

List of Participants

S. No	Name of the Student	Year &Sem	Signature
1.	MOJJADA MAHESH	I/CIVIL	M. Mahesh
2.	MUDDAPU MOHANARAO	I/CIVIL	M. Mohanarao
3.	PAILA SRAVANI	I/CIVIL	P. Sravani
4.	PAPARAO CHALLA	I/CIVIL	P. Challa
5.	PASUPUREDDY ESWARA RAO	I/CIVIL	P. Eswara Rao
6.	PATTIKA KASTURI	I/CIVIL	P. Kasturi
7.	RELLA SANTHOSH KUMAR	I/CIVIL	R. Santhosh.
8.	RUGADANA SANGEETHA	I/CIVIL	R. Sangeetha
9.	SAVARA GANESH	I/CIVIL	S. Ganesh
10.	SHERMAHAMMADPURAM JAYA PRAKASH	I/CIVIL	S. Jayaprakash
11.	TAMADA HEMANTHKUMAR	I/CIVIL	T. Hemanthkumar
12.	B KISHORE KUMAR	I/EEE	B. Kishorekumar
13.	BHAIRI NEERAJA	I/EEE	B. Neeraja
14.	CHODAVARAPU BHARGAVA KUMAR	I/EEE	C. Bhargavakumar
15.	GODDU DIVYA	I/EEE	G. Divya
16.	KINJARAPU SAI KUMAR	I/EEE	K. Saikumar
17.	LINGALA DEVI	I/EEE	L. Devi
18.	MUDDADA INDIRA	I/EEE	M. Indira
19.	MURAMARLA VENKATALAXMI	I/EEE	M. Venkata Lakshmi
20.	POLIREDDI SRINIVASA RAO	I/EEE	P. Srinivas
21.	ALLUPILLI SIMHACHALAM	I/MECH	A. Simhachalam
22.	ALUBILLI UPENDRA	I/MECH	A. Upendra
23.	BALAGA SASI BHUSHANA RAO	I/MECH	B. Sasi Bhushana Rao
24.	BONDAPALLI SRINU	I/MECH	B. Srinu
25.	BONELA JEEVAN KUMAR	I/MECH	B. Jeevan Kumar
26.	BUGATA AVINASH	I/MECH	B. Avinash
27.	CHUKKA MOHANKRISHNA	I/MECH	Ch. Mohankrishna
28.	DAKKATA TIRUPATHI	I/MECH	D. Tirupathi
29.	GULLA KARTHIK	I/MECH	G. Karthik
30.	GUNA DHANUNJAYA	I/MECH	G. Dhanunjaya
31.	GUNUPURU UPENDRA	I/MECH	G. Upendra
32.	MANDALA YAMUNA	I/ECE	M. Yamuna
33.	NAIKO NAVEEN	I/ECE	N. Naveen
34.	PARIGA BAIRAGI	I/ECE	P. Bairagi
35.	PATNANA SANDHYARANI	I/ECE	P. Bairagi
36.	POLIPALLI YASHASWANI	I/ECE	P. Yashaswani
37.	PONNADA YUVARAJU	I/ECE	P. Yuvaraju
38.	POTNURU PRIYANKA	I/ECE	P. Priyanka
39.	REKHALA SWATHI	I/ECE	R. Swathi
40.	SANGIREDDI SAILAKSHMI	I/ECE	S. Sai Lakshmi

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41.	KURMAPU PRAMEELA	I/CSE	K. Prameela
42.	LANDA SRAVANI	I/CSE	L. Sravani
43.	MEESALA SAI SWETHA	I/CSE	
44.	MENDA CHANDINI	I/CSE	M. Chandu
45.	MUKKALA UDAY SHANKAR	I/CSE	M. Shanku
46.	MYLAPALLI ABHISHAIK VICTOR	I/CSE	M. A. Victor.
47.	NALLA JHANSI	I/CSE	N. Jhansi
48.	NUKA SANTOSH KUMAR	I/CSE	N. Santosh Kumar
49.	PALAVALASA SWAPNA RANI	I/CSE	P. Swapnarani
50.	PALLI VINAY	I/CSE	P. Vinay
51.	PANTALA ANITHA	I/CSE	P. Anitha
52.	PENUGUDURU VASUDEVA RAO	I/CSE	P. Vasudeva
53.	POTHALA NAVYA SRI	I/CSE	P. Navya Sri
54.	POTNURU DEEPIKA	I/CSE	P. Deepika.
55.	RAKOTI HARIPRASAD	I/CSE	R. Hari Prasad
56.	SADASIVUNI SURYA MOUNIKA	I/CSE	S.S Mounika
57.	SANJANA MADABATTULA	I/CSE	S. madabattula
58.	SANKILI SUVARNA	I/CSE	S. Suvarna
59.	ABOTULA HEMASUNDARA PRASAD	II/CIVIL	A.H. Prasad
60.	AMPILLI SANGEETA	II/CIVIL	A. Sangeetha.
61.	ARIKA PRESIKELLA	II/CIVIL	Arika. P
62.	BAGADI RAMAKRISHNA	II/CIVIL	B. Ramakrishna
63.	BAMMIDI LAXMANA	II/CIVIL	B. Laxmana
64.	BELAMARA SAI SIREESHA	II/CIVIL	B. Sai Sireesha
65.	BIDDIKA LAXMIPRASANNA	II/CIVIL	B. Laxmi Prasanna
66.	BURALLA MADHU KUMAR	II/CIVIL	B. Madhukumar
67.	CHINNALA JAGADESWARA RAO	II/CIVIL	Ch. Jagadeswara
68.	CHINTADA SRAVANI	II/CIVIL	Ch. Sravani
69.	CHINTU HARISH	II/CIVIL	Harish Ch
70.	DEVAKIVADA DHARMA TEJA	II/CIVIL	D. Dharmateja
71.	DHANA LAKSHMI JAVAPU	II/CIVIL	D. Lakshmi Javapu
72.	DUBBA AASISH KUMAR	II/CIVIL	D. Aasish Kumar
73.	GONAPA RAHUL CHANDU	II/CIVIL	G. Rahul Chandu
74.	KAMBALA GURU MURTHY	II/EEE	K. Guramurthy
75.	MAMIDI THRILOVANI	II/EEE	M. Thrilovani
76.	MUGADA DURGAPRASAD	II/EEE	M. Durga Prasad.
77.	MUNAGAVALASA UMESHBABU	II/EEE	M. Umesh Babu
78.	PENUGUDURU NAVEEN	II/EEE	P. Naveen
79.	PINIMINTI VENKATALAKSHMI	II/EEE	P. Venkatalakshmi
80.	SAKETI KISHOR KUMAR	II/EEE	S. Kishor Kumar
81.	SANAPALA PAVANI	II/EEE	S. Pavani
82.	SEERA HARITHASREE	II/EEE	S. Harithasree
83.	SUVVARI TEJESWARA RAO	II/MECH	S. Tejeswara
84.	TALAGANA APPANNA	II/MECH	T. Appanna
85.	VANKALA SUNIL KUMAR	II/MECH	V. Sunil
86.	VARANASI NAVEEN KUMAR	II/MECH	V. Naveen Kumar.
87.	VENKATESH BEJJIPURAM	II/MECH	B. Venkatesh

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88.	VOONNA JAYADEV	II/MECH	V. jayadevi
89.	DUKKA DEVI	II/ECE	D. Devi
90.	EASAI BHAGYA LAXMI	II/ECE	E. Bhagya laxmi
91.	GEDALA MARY MANI	II/ECE	G. Marymani
92.	GUNA TEJESWARI	II/ECE	G. Tejeswari
93.	GUNTREDDI SUSMITHA	II/ECE	G. Susmitha
94.	GURUGUBELLI VENKATA HYMAVATHI	II/ECE	G.V. Hymavathi
95.	JANAM VENUGOPAL	II/ECE	J. Venugopal
96.	SAVARA ANUSHA	II/CSE	S. Anusha
97.	SIRIPILLI DURGA BHAVANI	II/CSE	S. Durga Bhavani
98.	SIRLA BHAVANIKUMARI	II/CSE	S.B kumari
99.	SRAVANI SANDHYA GANTYADA	II/CSE	S.S. Gantyada
100.	TAMADA SRINU	II/CSE	T. Srinu.
101.	TAMMIREDDY LAVANYA	II/CSE	T. Lavanya
102.	TANGUDU KARTEEK	II/CSE	T. Karteek
103.	TEEMARA HARIKA	II/CSE	T. harika.

NagaRaju

NSS PO

PRINCIPAL
Sri Venkateswara College of Engineering&Technology
ETCHERLA, Srikakulam-532410 (A.P)

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Date:20.01.2023

CIRCULAR

This is to inform all the students and staff that on account of **"NATIONAL VOTERS DAY"** our college NSS Unit is going to conduct Rally on **"VOTING AWRENESS"** in ETCHERLA village on 25.01.2023. Hence interested students can register their names at NSS PO, Mr. Nagaraju on or before **24.01.2023.**

NSS PO

PRINCIPAL

PRINCIPAL
Sri Venkateswara College of Engineering&Technology
ETCHERLA, Srikakulam-532410 (A.P)

Copy Submitted To: Honorable Management for Favor of Information:

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Signature												

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Office : +91 9705576693, email: principal_svcet@yahoo.com, website: www.svcet.info

DATE: 27.01.2023

Program Report	
Name of the Event	**"NATIONAL VOTERS DAY" - VOTING AWARENESS**
Event start date	**25.01.2023**
Event end date	**25.01.2023**
Place of the activity	ETCHERLA Village
No of Participants	88
Collaboration	SVCET – NSS UNIT
Description	We @SVCET-NSS UNIT On National Voters' Day, a voter awareness rally was conducted in Etcherla to emphasize the importance of voting and encourage active participation in the democratic process. The rally saw enthusiastic participation from students, local residents, and officials, all united in their commitment to promoting electoral awareness. Participants carried banners and posters with messages advocating the significance of every vote and the role of informed voting in shaping the future of the nation. This rally aimed to educate the community about their voting rights and responsibilities, fostering a sense of civic duty and empowerment among the citizens of ETCHERLA.

NSS PO

PRINCIPAL
Sri Venkateswara College of Engineering & Technology
ETCHERLA, Srikakulam-532 410 (A.P)

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Office : +91 9705576693, email: principal_svcet@yahoo.com, website: www.svcet.info

Name of the Event: NATIONAL VOTERS DAY

Date: 25.01.2023

List of Participants

S. No	Name of the Student	Year &Sem	Signature
1.	KANITHI BHARGAVI	I/CSE	K. Bhargavi
2.	KARANAM SIREESHA	I/CSE	K. Sireesha
3.	KOKKIRI ANUSHA	I/CSE	K. Anusha
4.	KOLLI SRUTHI	I/CSE	K. Sruthi
5.	KONDA SAI SAMPATH KUMAR	I/CSE	K. Sai Sampath
6.	KONNI LIKHITHA	I/CSE	K. Likhitha
7.	KOTTURU ASWINI	I/CSE	K. Aswini
8.	KOVADA SPANDANA	I/CSE	K. Spandana
9.	KURMAPU PRAMEELA	I/CSE	K. Prameela
10.	ARIKA PRESIKELLA	II/CIVIL	Arika. P
11.	BAGADI RAMAKRISHNA	II/CIVIL	B. Ramakrishna
12.	BAMMIDI LAXMANA	II/CIVIL	B. Laxmana
13.	BELAMARA SAI SIREESHA	II/CIVIL	B. Sai Sireesha
14.	BIDDIKA LAXMIPRASANNA	II/CIVIL	B. Laxmi prasanna
15.	BURALLA MADHU KUMAR	II/CIVIL	B. Madhu Kumar
16.	CHINNALA JAGADESWARA RAO	II/CIVIL	Ch. Jagadeswara Rao
17.	CHINTADA SRAVANI	II/CIVIL	C. Sravani
18.	CHINTU HARISH	II/CIVIL	C. Harish
19.	DEVAKIVADA DHARMA TEJA	II/CIVIL	D. Dharma teja
20.	DHANA LAKSHMI JAVAPU	II/CIVIL	J. Dhana Lakshmi
21.	DUBBA AASISH KUMAR	II/CIVIL	D. Aasish kumar
22.	GONAPA RAHUL CHANDU	II/CIVIL	G. Chandu
23.	GURUGUBELLI BHARGAVI	II/CIVIL	G. Bhargavi
24.	JAMPA MEENA	II/CIVIL	J. Meena
25.	KOSTU VENKATARATNAM	II/CIVIL	K. Venkataratnam
26.	KUMBIRIKI SANTHOSHI	II/CIVIL	K. Santhoshi
27.	KUNDANGI RAJINI	II/CIVIL	K. Rajini
28.	KUPPILI RAJASULOCHANA	II/CIVIL	K. Rajasulochana
29.	KURMANA KAVYA	II/CIVIL	K. Kavya
30.	LINGALA SANDHYA	II/CIVIL	L. Sandhya
31.	MALATHI YARAGADA	II/CIVIL	M. Yaragada
32.	NIMMAKA PRAMEELA	II/CIVIL	N. Prameela
33.	PAIDI RAM KUMAR	II/CIVIL	P. Ram Kumar
34.	JAMI SUNEEL	II/EEE	J. Suneel
35.	KAMBALA GURU MURTHY	II/EEE	K. Guru murthy
36.	MAMIDI THRILOVANI	II/EEE	M. Thrilovani
37.	MUGADA DURGAPRASAD	II/EEE	M. Durgaprasad
38.	MUNAGAVALASA UMESHBABU	II/EEE	M. Umeshbabu
39.	PENUGUDURU NAVEEN	II/EEE	P. Naveen
40.	PINIMINTI VENKATALAKSHMI	II/EEE	P. Venkatalakshmi
41.	SAKETI KISHOR KUMAR	II/EEE	S. Kishor Kumar

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42.	EROTU JEEVANA RAO	II/MECH	E. JeevanaRao
43.	GEDELA KUMARA SWAMY	II/MECH	G. Kumara Swamy
44.	GOLIVE SANKARA RAO	II/MECH	G. Sankara Rao
45.	GOLIVI SANTHOSH	II/MECH	G. Santhosh
46.	GURUBELLI SANTHOSH KUMAR	II/MECH	G. Santhosh
47.	GURUGUBELLI VARAHALU NAIDU	II/MECH	G. Naidu
48.	HORIYA BASUDEVO	II/MECH	H. Basudevo
49.	KADAMBALA MANIKIRAN	II/MECH	K. manikiran
50.	KAMSU RUPSUNDAR RAO	II/MECH	K. Rupsundar
51.	KAVALLA BHASKARARAO	II/MECH	K. Bhaskar
52.	KOLA SATISH	II/MECH	K. Satish
53.	KURAMANA PRASAD	II/MECH	K. Prasad
54.	KURUMENU DEVENDRA PRASAD	II/MECH	K. Devendra Prasad
55.	MARRIVALASA KIRAN SAI KUMAR	II/MECH	K. Devendra Prasad
56.	MOYYI VAMSI	II/MECH	M. Vamsi
57.	MUDDADA THAVITI RAJU	II/MECH	M. Thaviti Raju
58.	MUKALA GANESWARA RAO	II/MECH	M. Ganesh
59.	MUKALLA RAJASEKHAR	II/MECH	M. Rajasekhar
60.	BURLE ANURADHA	II/ECE	B. Anuradha
61.	CHALAPATI MEGHANA	II/ECE	B. Anuradha
62.	DHARMANA SRAVANI	II/ECE	D. Sravani
63.	DUKKA DEVI	II/ECE	D. Devi
64.	EASAI BHAGYA LAXMI	II/ECE	E. Bhagya Laxmi
65.	GEDALA MARY MANI	II/ECE	G. Mary Mani
66.	GUNA TEJESWARI	II/ECE	G. Tejeswari
67.	GUNTREDDI SUSMITHA	II/ECE	G. Susmitha
68.	GURUGUBELLI VENKATA HYMAVATHI	II/ECE	G. Venkata Hymavathi
69.	JANAM VENUGOPAL	II/ECE	J. Venu Gopal
70.	JARJANA YAMUNA	II/ECE	J. Yamuna
71.	KAPPARAPU RAMU	II/ECE	K. Ramu
72.	KODEM SAI MANIKANTA PAVAN KUMAR	II/ECE	K. Sai Manikanta Pavan Kumar
73.	KONDAGORRI AMEELA	II/ECE	K. AMEELA
74.	KONDALA SRAVANI	II/ECE	K. Sravani
75.	KUNDANGI PAVITRA	II/ECE	K. Pavitra
76.	LINGALA SANDHYA	II/ECE	L. Sandhya
77.	LINGALA VENUKUMARI	II/ECE	L. Venukumari
78.	LOPINTI SANDHYARANI	II/ECE	L. SANDHYA
79.	SAVARA ANUSHA	II/CSE	S. Anusha
80.	SIRIPILLI DURGA BHAVANI	II/CSE	S. Durga Bhavani
81.	SIRLA BHAVANIKUMARI	II/CSE	S. Bhavanikumari
82.	SRAVANI SANDHYA GANTYADA	II/CSE	S. Sravani
83.	TAMADA SRINU	II/CSE	T. SRINU
84.	TAMMIREDDY LAVANYA	II/CSE	T. Lavanya
85.	TANGUDU KARTEEK	II/CSE	T. Karteek

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Date: 14.10.2022

CIRCULAR

This is to inform all the students and staff that on account of **"SWACCH BHARAT"** our college NSS Unit is going to conduct **CLEANING PROGRAM** in ETCHERLA on 21.10.2022. Hence interested students can register their names at NSS PO, Mr. Nagaraju on or before 20.10.2022.

NSS PO

PRINCIPAL
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Signature												

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NSS PO

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Name of the Event: "SWACCH BHARAT"

Date: 21.10.2022

List of Participants

S. No	Name of the Student	Year &Sem	Signature
1.	BANKURU DIVYADEEPIKA	I/CIVIL	B. Divyadeepika
2.	BONAM PRIYANKA	I/CIVIL	B. PRIYANKA
3.	CHINNALA NARAYANA RAO	I/CIVIL	C. NarayaRao
4.	CHINNALAHARI KRISHNA	I/CIVIL	C. Krishna
5.	GANTASALA SATEESH	I/CIVIL	G. Sateesh
6.	GURUGUBELLI PRAVEEN	I/CIVIL	G. Praveen
7.	KARIGGI GANESH	I/CIVIL	K. Ganesh
8.	KONDAGORRI KUMARA SWAMY	I/CIVIL	K. Kumar Swamy
9.	KOYYAN AABHISHEK	I/CIVIL	K. Aabhishek
10.	MAJJI RAMBABU	I/CIVIL	M. Rambabu
11.	MALUGU NARENDRA	I/CIVIL	M. Narendra
12.	B KISHORE KUMAR	I/EEE	B. Kishore Kumar
13.	BHAIRI NEERAJA	I/EEE	B. Neeraja
14.	CHODAVARAPU BHARGAVA KUMAR	I/EEE	C. Bhargava Kumar
15.	GODDU DIVYA	I/EEE	G. Divya
16.	KINJARAPU SAI KUMAR	I/EEE	K. Sai Kumar
17.	LINGALA DEVI	I/EEE	L. Devi
18.	MUDDADA INDIRA	I/EEE	M. Indira
19.	MURAMARLA VENKATALAXMI	I/EEE	M. Venkatalaxmi
20.	POLIREDDI SRINIVASA RAO	I/EEE	P. Srinivasa Rao
21.	SEERAMSETTY GOWTHAM	I/EEE	S. Gowtham
22.	ALLUPILLI SIMHACHALAM	I/MECH	A. Simhachalam
23.	ALUBILLI UPENDRA	I/MECH	A. Upendra
24.	BALAGA SASI BHUSHANA RAO	I/MECH	B. Srinu
25.	BONDAPALLI SRINU	I/MECH	B. Srinu
26.	BONELA JEEVAN KUMAR	I/MECH	B. Jeevan Kumar
27.	BUGATA AVINASH	I/MECH	B. Avinash
28.	CHUKKA MOHANKRISHNA	I/MECH	C. Mohankrishna
29.	DAKKATA TIRUPATHI	I/MECH	D. Tirupathi
30.	GULLA KARTHIK	I/MECH	G. Karthik
31.	GUNA DHANUNJAYA	I/MECH	G. Dhanunjay
32.	GUNUPURU UPENDRA	I/MECH	G. Upendra
33.	KADAGALA CHANDRASEKHAR	I/MECH	K. Chandrasekhar
34.	KORADA UPENDRA	I/MECH	K. Upendra
35.	KUNA PRADEEP	I/MECH	K. Pradeep
36.	NANDIKI DEEPAK	I/MECH	N. Deepak
37.	NATTI NARESH	I/MECH	N. Naresh
38.	NELLIPARTI HEMANTH	I/MECH	N. Hemanth

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39.	PENUMAJJI KISHOR	I/MECH	P. Kishor
40.	RAMPATRUNI HARIKRISHNA	I/MECH	R. HariKRisha
41.	RATNALA RUSHI	I/MECH	R. Rushi
42.	SAMPATIRAO HARSHA VARDHAN	I/MECH	S.
43.	SAVARA MANOJ KUMAR	I/MECH	S. Manoj Kumar
44.	SELAGALA VENKATARAMANA	I/MECH	S.
45.	TIMMANA ESWARA RAO	I/MECH	T. Eswara Rao
46.	BITTU KUMAR	I/MECH	B. Kumar
47.	MANTOSH KUMAR	I/MECH	M. Kumar
48.	KRISHNA KUMAR MANDAL	I/MECH	K. Kumar Mandal
49.	DEEPAK KUMAR	I/MECH	Deepak kumar
50.	MRITUNJAY KUMAR	I/MECH	M. Kumar
51.	SUJIT KUMAR	I/MECH	Sujit Kumar
52.	PRAINCE KUMAR	I/MECH	P. Kumar
53.	SHRAVAN KUMAR	I/MECH	S.
54.	RAHUL KUMAR	I/MECH	R. Kumar
55.	RAUSHAN KUMAR	I/MECH	Raushan Kumar
56.	SUMIT KUMAR KHARWAR	I/MECH	S.
57.	ARANGI SURESH	I/ECE	A. Suresh
58.	ARANGI SURESH	I/ECE	A. Suresh
59.	BANALA DHANALAKSHMI	I/ECE	B. Dhanalakshmi
60.	BAVIRI RAJESWARI	I/ECE	B. Rajeswari
61.	BEVARA NAGAMANI	I/ECE	B. Nagamani
62.	BONELA PRAMEELA RANI	I/ECE	B. Rakeda Rani
63.	BONGU MANIKANTA REDDY	I/ECE	B. Manikanta reddy
64.	BURADA SAI SEETHA RAM MOHAN	I/ECE	B.S. Seetha Ram Mohan
65.	CHENCHALA DINESH	I/ECE	C. Dinesh
66.	CHINTADA SATYA PRASAD	I/ECE	C. Satya Prasad
67.	DANETI SWATHI	I/ECE	D. Swathi
68.	ABOTHULA SAI THUNAJA	I/CSE	A. Sai Thanuja
69.	ADAPAKA PURNIMA	I/CSE	A. Purnima
70.	BADE CHINNI	I/CSE	B. Chinni
71.	CHINNALA SAIKUMARI	I/CSE	C. Saikumari
72.	CHINTADA SHARMILA	I/CSE	C. Sharmila
73.	CHINTALA MOUNIKA	I/CSE	C. Mounika
74.	CHODIPILLI ROHIT	I/CSE	C. Rohit
75.	DHAVALA KAVYA	I/CSE	D. Kavya.
76.	DHAVALA SAI SIREESHA	I/CSE	D. Sai Sireesha
77.	DUPPATLA NIKHIL	I/CSE	D. Nikhil
78.	GAINEDI MONIKA PRIYA	I/CSE	G. Monika
79.	GANDETI ASWINI	I/CSE	G. Aswini
80.	GEDELA RAJA SEKHAR	I/CSE	G.
81.	GIRADA SRAVANI	I/CSE	G. Sravani
82.	GORUSU PAVAN	I/CSE	G. Pavan
83.	KADA PUJA	I/CSE	K. Puja
84.	KALAGA MOUNIKA	I/CSE	K. Mounika
85.	KALAMATA GOWRI	I/CSE	K. Gowri

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86.	KANCHARANA YAMINI	I/CSE	K. Yamini
87.	KANITHI BHARGAVI	I/CSE	K. Bhargavi
88.	KARANAM SIREESHA	I/CSE	K. Sireesha
89.	KOKKIRI ANUSHA	I/CSE	K. Anusha
90.	KOLLI SRUTHI	I/CSE	K. Sruthi
91.	KONDA SAI SAMPATH KUMAR	I/CSE	K. S. Sampath Kumar
92.	KONNI LIKHITHA	I/CSE	K. Likhitha
93.	KOTTURU ASWINI	I/CSE	K. Aswini
94.	KOVADA SPANDANA	I/CSE	K. Spandana
95.	GOSALA PRIYANKA	II/CIVIL	G. Priyanka
96.	GUNDA LEELA PRIYA	II/CIVIL	G. Leela Priya
97.	GUVVADA MANJULA	II/CIVIL	G. Manjula
98.	KADAMBALA MAHA LAKSHMI	II/CIVIL	K. Maha Lakshmi
99.	KENGUVA ANNAPURNA	II/CIVIL	K. Annapurna
100.	KONDAGORRI NIROSHA	II/CIVIL	K. Nirosha
101.	KUNA GOWTHAMI	II/CIVIL	Kuna Gowthami
102.	LAMBURU SWAPNA	II/CIVIL	L. Swapna
103.	MARUBARIKI PADMA	II/CIVIL	M. Padma
104.	NARSIPURAM DRAKSHAYANI	II/CIVIL	N. Drakshayani
105.	NIMMAKA ANUSHA	II/CIVIL	N. Anusha
106.	NIMMAKA SANDYARANI	II/CIVIL	N. Sandhya Rani
107.	SAMBANA GEETANJALI	II/CSE	S. Geetanjali
108.	SANAPALA PAVAN KRISHNA	II/CSE	S. Pavan Krishna
109.	SAVARA ANUSHA	II/CSE	S. Anusha
110.	SIRIPILLI DURGA BHAVANI	II/CSE	S. Anusha
111.	SIRLA BHAVANIKUMARI	II/CSE	S. Bhavanikumari
112.	SRAVANI SANDHYA GANTYADA	II/CSE	G. Sravani Sandhya
113.	TAMADA SRINU	II/CSE	T. Srinu
114.	TAMMIREDDY LAVANYA	II/CSE	T. Lavanya

Nagaraju
NSS PO

PRINCIPAL
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Date: 02.02.2023

CIRCULAR

This is to inform all the students and staff that our college NSS Unit is going to associate with MBA Department and conduct **"ROAD SAFETY – AWARENESS RALLY"** SVCET to SRIKAKULAM on 07.02.2023. Hence interested students can register their names at NSS PO, Mr. NAGARAJU on or before 06.02.2023.

NSS PO

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Signature												

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DATE: 08.02.2023

Program Report	
Name of the Event	**"ROAD SAFETY AWARENESS - RALLY"**
Event start date	07.01.2019
Event end date	07.01.2019
Place of the activity	SRIKAKULAM
No of Participants	78
Collaboration	SRIKAKULAM MUNCIPALITY
Description	We @SVCET-NSS UNIT conducted rally on Road Safety Awareness program. Today, we gather with a shared mission: to promote road safety and prevent accidents through education and awareness, Road safety is a critical issue that affects us all. By adhering to traffic rules and practicing safe driving habits, we can significantly reduce the number of accidents and save lives. Our program today aims to highlight the importance of road safety and encourage everyone to adopt responsible behavior on the roads. As part of this initiative, our students will be displaying informative placards that carry vital messages about road safety. These placards cover various aspects of road safety, including the importance of wearing seat belts, obeying speed limits, avoiding mobile phone usage while driving, and respecting pedestrian crossings

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Name of the Event: ROAD SAFETY – AWARENESS RALLY

Date: 07.02.2023

List of Participants

S. No	Name of the Student	Year & Sem	Signature
1.	PAPARAO CHALLA	I/CIVIL	P. Challa
2.	PASUPUREDDY ESWARA RAO	I/CIVIL	P. Eswara Rao
3.	PATTIKA KASTURI	I/CIVIL	P. Kasturi
4.	RELLA SANTHOSH KUMAR	I/CIVIL	R. Santhoshkumar
5.	RUGADANA SANGEETHA	I/CIVIL	R. Sangeetha
6.	SAVARA GANESH	I/CIVIL	S. Ganesh
7.	SHERMAHAMMADPURAM JAYA PRAKASH	I/CIVIL	S. Jaya Prakash
8.	TAMADA HEMANTHKUMAR	I/CIVIL	T. Hemanth Kumar
9.	VOOYAKA KUMARA SWAMY	I/CIVIL	V. Kumara Swamy
10.	YANDA TEJESWARA RAO	I/CIVIL	Y. Tejeswara Rao.
11.	B KISHORE KUMAR	I/EEE	B. Kishore Kumar
12.	BHAIRI NEERAJA	I/EEE	B. Neeraja
13.	CHODAVARAPU BHARGAVA KUMAR	I/EEE	C. Bhargava kumar
14.	GODDU DIVYA	I/EEE	G. Divya.
15.	KINJARAPU SAI KUMAR	I/EEE	K. Sai Kumar
16.	LINGALA DEVI	I/EEE	L. Devi
17.	MUDDADA INDIRA	I/EEE	M. Indira.
18.	MURAMARLA VENKATALAXMI	I/EEE	M. Venkatalaxmi
19.	POLIREDDI SRINIVASA RAO	I/EEE	P. Srinivasa rao
20.	SEERAMSETTY GOWTHAM	I/EEE	S. Gowtham.
21.	SURAJBHAN SINGH RATHOR	I/EEE	Abhishek Kumar
22.	ABHISHEK KUMAR MAHTO	I/EEE	M. Abhisek kumar.
23.	RAUSHAN KUMAR	I/EEE	R. Kumar
24.	RITIK RAJ	I/EEE	R. Raj
25.	VIKASH KUMAR	I/EEE	V. Kumar
26.	GUNA DHANUNJAYA	I/MECH	R. Raj
27.	GUNUPURU UPENDRA	I/MECH	G. Upendra.
28.	KADAGALA CHANDRASEKHAR	I/MECH	G. Upendra
29.	KORADA UPENDRA	I/MECH	K. Upendra.
30.	KUNA PRADEEP	I/MECH	K. Pradeep
31.	NANDIKI DEEPAK	I/MECH	N. Deepak
32.	NATTI NARESH	I/MECH	N. Naresh
33.	NELLIPARTI HEMANTH	I/MECH	N. Naresh.
34.	PENUMAJJI KISHOR	I/MECH	P. KISHOR.
35.	RAMPATRUNI HARIKRISHNA	I/MECH	R. Harikrishna
36.	RATNALA RUSHI	I/MECH	R. Rushi
37.	SAMPATIRAO HARSHA VARDHAN	I/MECH	S. Harshavardhan
38.	SAVARA MANOJ KUMAR	I/MECH	S. Manoj Kumar

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39.	DOLA ASHA RAJU	I/ECE	
40.	DOLA PRASANTHI KUMARI	I/ECE	
41.	GARA LEELARANI	I/ECE	
42.	GUNA JAYARAM	I/ECE	
43.	GUNUPURU GOWREESWARI	I/ECE	
44.	GUNUPURU SULOCHANA	I/ECE	
45.	GURUGUBELLI BALA KRISHNA RAO	I/ECE	
46.	ILLIPOTHI SAI MOHAN	I/ECE	
47.	JEEVAN SHREE PANIGRAHI	I/ECE	
48.	KONCHADA YOGESWARI	I/ECE	
49.	LENKA NAVEEN KUMAR	I/ECE	
50.	MAMIDI LAVANYA	I/ECE	
51.	MANDALA YAMUNA	I/ECE	
52.	NAIKO NAVEEN	I/ECE	
53.	PARIGA BAIRAGI	I/ECE	
54.	PATNANA SANDHYARANI	I/ECE	
55.	CHINTADA SHARMILA	I/CSE	
56.	CHINTALA MOUNIKA	I/CSE	
57.	CHODIPILLI ROHIT	I/CSE	
58.	DHAVALA KAVYA	I/CSE	
59.	DHAVALA SAI SIREESHA	I/CSE	
60.	DUPPATLA NIKHIL	I/CSE	
61.	GAINEDI MONIKA PRIYA	I/CSE	
62.	GANDETI ASWINI	I/CSE	
63.	GEDELA RAJA SEKHAR	I/CSE	
64.	GIRADA SRAVANI	I/CSE	
65.	GORUSU PAVAN	I/CSE	
66.	KADA PUJA	I/CSE	
67.	KALAGA MOUNIKA	I/CSE	
68.	KALAMATA GOWRI	I/CSE	
69.	KANCHARANA YAMINI	I/CSE	
70.	KANITHI BHARGAVI	I/CSE	
71.	KARANAM SIREESHA	I/CSE	
72.	KOKKIRI ANUSHA	I/CSE	
73.	KOLLI SRUTHI	I/CSE	
74.	BHASKARABHATLA CHINMAI	II/ECE	
75.	BURLE ANURADHA	II/ECE	
76.	CHALAPATI MEGHANA	II/ECE	
77.	DHARMANA SRAVANI	II/ECE	
78.	DUKKA DEVI	II/ECE	

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Date:25-10-2022

CIRCULAR

This is to inform all the students and staff that on account of **"NATIONAL UNITY DAY – RALLY"** on 31-10-2022. our college NSS Unit is going to conduct **"RALLY FROM COLLEGE TO CHILAKAPALEM VILLAGE"** on 31-10-2022. This Rally is to create awareness on NATIONAL UNITY DAY – UNITY RUN. Hence interested students can register their names at NSS PO Mr. Nagaraju on or before 29-10-2022.

Nagaraju

NSS PO

Principal

PRINCIPAL
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ETCHERLA, Srikakulam

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Signature												

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Date:02-11-2022

Program Report

Name of the Event	**"NATIONAL UNITY DAY – UNITY RUN"**
Event start date	31-10-2022
Event end date	31-10-2022
Place of the activity	CHILAKAPALEM
No of Participants	63
Collaboration	SVCET – NSS UNIT
Description	**"NATIONAL UNITY DAY"** is celebrated RALLY on October 31st National Unity Day is celebrated to recognize the endeavors of Sardar Vallabhbhai Patel to unite the country. The significance of this day is as follows: It aims to reaffirm the solidarity among the people of India. It aims to maintain the spirit of "unity in diversity" among the people. As a part of it SVCET NSS Unit has organized **"RALLY" on 31-10-2022**. With all students and Volunteers took the Unity Pledge and **Principal Dr. S C V RAMANA MURTHY NAIDU, and Vice Principal Dr. V K CHAKRAVARTHY** have explained the importance of Unity Day and inaugurated the flag for RALLY with 45 SVCET NSS Volunteers and students.

NSS PO

PRINCIPAL
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Name of the Event: NATIONAL UNITY DAY

Date: 31.10.2022

List of Participants

S. No	Name of the Student	Year &Sem	Signature
1.	SHERMAHAMMADPURAM JAYA PRAKASH	I/CIVIL	S. Jaya Prakash
2.	TAMADA HEMANTHKUMAR	I/CIVIL	T. Hemanthkumar
3.	VOOYAKA KUMARA SWAMY	I/CIVIL	V. Kumara Swamy
4.	YANDA TEJESWARA RAO	I/CIVIL	Y. Tejaswara Rao
5.	DEEPAK KUMAR	I/CIVIL	D. Kumar
6.	RAJEEV KUMAR	I/CIVIL	R. Kumar
7.	BOLBAM PANDIT	I/CIVIL	B. PANDIT
8.	MITHILESH KUMAR SHARMA	I/CIVIL	M. Sharma.
9.	PRINCE RAJ	I/CIVIL	P. Raj
10.	SUNNY KUMAR	I/CIVIL	S. Kumark.
11.	MANISHA KUMARI	I/CIVIL	m. kumari
12.	MURAMARLA VENKATALAXMI	I/EEE	M. Venkatalaxmi
13.	POLIREDDI SRINIVASA RAO	I/EEE	P. S. Rao
14.	SEERAMSETTY GOWTHAM	I/EEE	S. Gowtham.
15.	SURAJBHAN SINGH RATHOR	I/EEE	S. Singh Rathor
16.	ABHISHEK KUMAR MAHTO	I/EEE	M. Abhishek kumar.
17.	RAUSHAN KUMAR	I/EEE	R. Kumar
18.	ALLÚPILLI SIMHACHALAM	I/MECH	A. Simhachalam
19.	ALUBILLI UPENDRA	I/MECH	A. Upendra
20.	BALAGA SASI BHUSHANA RAO	I/MECH	B. Sasi Bhushana Rao
21.	BONDAPALLI SRINU	I/MECH	B. srinu
22.	BONELA JEEVAN KUMAR	I/MECH	B. Jeevan Kumar
23.	BUGATA AVINASH	I/MECH	B. Avinash
24.	CHUKKA MOHANKRISHNA	I/MECH	Ch. Mohan Krishna
25.	DAKKATA TIRUPATHI	I/MECH	D. Tirupathi
26.	GULLA KARTHIK	I/MECH	G. Karthik.
27.	GUNA DHANUNJAYA	I/MECH	G. Dhanunjaya
28.	GUNUPURU UPENDRA	I/MECH	G. Upendra
29.	KADAGALA CHANDRASEKHAR	I/MECH	K. Chandrasekhar
30.	KORADA UPENDRA	I/MECH	K. Upendra
31.	KUNA PRADEEP	I/MECH	K. Pradeep
32.	NANDIKI DEEPAK	I/MECH	N. Deepak
33.	NATTI NARESH	I/MECH	N. Naresh
34.	NELLIPARTI HEMANTH	I/MECH	N. Hemanth
35.	PENUMAJJI KISHOR	I/MECH	P. Kishor
36.	ARANGI SURESH	I/ECE	A. Suresh
37.	BANALA DHANALAKSHMI	I/ECE	B. Dhanalakshmi
38.	BAVIRI RAJESWARI	I/ECE	B. Rajeswari
39.	BEVARA NAGAMANI	I/ECE	B. Nagamani

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40.	BONELA PRAMEELA RANI	I/ECE	B. Prameela Rani
41.	BONGU MANIKANTA REDDY	I/ECE	B. MANIKANTA Reddy
42.	BURADA SAI SEETHA RAM MOHAN	I/ECE	B.S.S. Ram Mohan
43.	CHENCHALA DINESH	I/ECE	Ch. Dinesh.
44.	CHINTADA SATYA PRASAD	I/ECE	Ch. Satya Prasad
45.	DANETI SWATHI	I/ECE	D. Swathi.
46.	DEVARASETTI TANUJA	I/ECE	D. Tanuja
47.	DOLA ASHA RAJU	I/ECE	D. ASHA RAJU
48.	DOLA PRASANTHI KUMARI	I/ECE	D. Asha Raju
49.	GARA LEELARANI	I/ECE	G. Jayo Rani
50.	GUNA JAYARAM	I/ECE	G. JAYARAM
51.	GUNUPURU GOWREESWARI	I/ECE	G. Gowreeswari
52.	GUNUPURU SULOCHANA	I/ECE	G. Sulochana
53.	GURUGUBELLI BALA KRISHNA RAO	I/ECE	G. Krish
54.	ILLIPOTHI SAI MOHAN	I/ECE	I. Sai Mohan
55.	ARANGI SURESH	I/ECE	A. Suresh
56.	BANALA DHANALAKSHMI	I/ECE	B. Dhanalakshmi
57.	GEDELA RAJA SEKHAR	I/CSE	G. Raja Sekhar
58.	GIRADA SRAVANI	I/CSE	G. Sravani
59.	GORUSU PAVAN	I/CSE	G. Pavan
60.	KADA PUJA	I/CSE	K. Puja
61.	KALAGA MOUNIKA	I/CSE	K. Mounika
62.	KALAMATA GOWRI	I/CSE	K. GOWRI
63.	KANCHARANA YAMINI	I/CSE	K. YAMINI

Nagaraju

NSS PO

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Date: 24.04.2023

CIRCULAR

This is to inform all the students and staff that our college NSS Unit is going to conduct **"MEDICAL CAMPAIGN"** at SSR Puram village on **28.04.2023**. Hence interested students can register their names at NSS PO, Mr. Nagaraju on or before 27.04.2023.

NSS PO

PRINCIPAL

PRINCIPAL
Sri Venkateswara College of Engineering & Technology
ETCHERLA, Srikakulam-532410 (A.P)

Copy Submitted To: Honorable Management for Favor of Information:

Department	IQAC	CE	EEE	ME	ECE	CSE	AIML	BS&H	MBA	OFFICE	NOTICE BOARD	FILE
Signature												

SRI VENKATESWARA
COLLEGE OF ENGINEERING & TECHNOLOGY
ISO 9001:2015 Certified
(Approved by AICTE, New Delhi, Affiliated to JNTUGV, Vizianagaram)
Office : +91 9705576693, email: principal_svcet@yahoo.com, website: www.svcet.info

DATE: 29.04.2023

Program Report	
Name of the Event	**MEDICAL CAMP**
Event start date.	28.04.2023
Event end date	28.04.2023
Place of the activity	SSR Puram Village
No of Participants	88
Collaboration	GEMS HOSPITAL
Description	We @SVCET-NSS UNIT organized a medical camp at SSR Puram village to provide healthcare services to the local community. The camp offered free medical check-ups, consultations, and basic treatments. A team of doctors and healthcare professionals conducted screenings for common ailments, distributed medicines, and provided health education on preventive measures. The initiative aimed to improve health awareness and access to medical care for the villagers, enhancing their overall well-being.

Nagaraju
NSS PO

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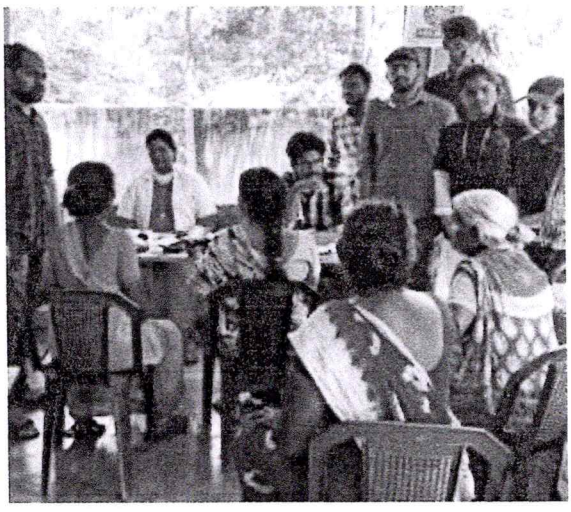

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Name of the Event: MEDICAL CAMP

Date: 28.04.2023

List of Participants

S. No	Name of the Student	Year &Sem	Signature
1.	BAMMIDI LAXMANA	II/CIVIL	B. Laxmana
2.	BELAMARA SAI SIREESHA	II/CIVIL	B. SAI SIREESHA
3.	BIDDIKA LAXMIPRASANNA	II/CIVIL	B. Laxmiprasanna
4.	BURALLA MADHU KUMAR	II/CIVIL	B. MADHU Kumar
5.	CHINNALA JAGADESWARA RAO	II/CIVIL	B. Madhu
6.	CHINTADA SRAVANI	II/CIVIL	C. Sravani
7.	CHINTU HARISH	II/CIVIL	Ch. Harish
8.	DEVAKIVADA DHARMA TEJA	II/CIVIL	D. Dharma Teja
9.	DHANA LAKSHMI JAVAPU	II/CIVIL	D. Lakshmi Jayapu
10.	DUBBA AASISH KUMAR	II/CIVIL	D. Aashish Kumar
11.	GONAPA RAHUL CHANDU	II/CIVIL	G. Rahul Chandu
12.	GURUGUBELLI BHARGAVI	II/CIVIL	G. Bhargavi
13.	JAMPA MEENA	II/CIVIL	Meena.
14.	KOSTU VENKATARATNAM	II/CIVIL	K. Venkataratnam
15.	KUMBIRIKI SANTHOSHI	II/CIVIL	K. Santhoshi
16.	KUNDANGI RAJINI	II/CIVIL	K. Rajini
17.	MAMIDI THRILOVANI	II/EEE	M. Trilovani.
18.	MUGADA DURGAPRASAD	II/EEE	M. Durgaprasad
19.	MUNAGAVALASA UMESHBABU	II/EEE	M. Umeshbabu
20.	PENUGUDURU NAVEEN	II/EEE	P. Naveen
21.	PINIMINTI VENKATALAKSHMI	II/EEE	P. Venkatalakshmi
22.	SAKETI KISHOR KUMAR	II/EEE	S. Kishor kumar.
23.	SANAPALA PAVANI	II/EEE	S. Pavani
24.	SEERA HARITHASREE	II/EEE	S. Harithasree
25.	SUGGU KRANTHI KUMAR	II/EEE	S. K. Kumar.
26.	TAMMINAINA VANITHASRI	II/EEE	T. Vanithasri
27.	KAVALLA BHASKARARAO	II/MECH	K. Bhaskararao
28.	KOLA SATISH	II/MECH	K. Satish
29.	KURAMANA PRASAD	II/MECH	K. Prasad
30.	KURUMENU DEVENDRA PRASAD	II/MECH	K. Devendra Prasad
31.	MARRIVALASA KIRAN SAI KUMAR	II/MECH	M. Kiran Sai Kumar
32.	MOYYI VAMSI	II/MECH	M. Vamsi
33.	MUDDADA THAVITI RAJU	II/MECH	M. Thaviti Raju
34.	MUKALA GANESWARA RAO	II/MECH	M. Ganeswara rao
35.	MUKALLA RAJASEKHAR	II/MECH	N. Dinesh
36.	NOLLU DINESH	II/MECH	N. Dinesh
37.	PAGOTI BHARGAVA RAO	II/MECH	P. Bhargava Rao
38.	PANCHIREDDY GANAPATHI	II/MECH	P. Ganapathi
39.	POGIRI NARESH	II/MECH	P. Naresh

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40.	ADIMULAM PRASANTH KUMAR	II/ECE	A. Prasanth Kumar
41.	BHASKARABHATLA CHINMAI	II/ECE	B. Chinmai
42.	BURLE ANURADHA	II/ECE	B. Anuradha
43.	CHALAPATI MEGHANA	II/ECE	Ch. Meghana
44.	DHARMANA SRAVANI	II/ECE	D. Sravani
45.	DUKKA DEVI	II/ECE	D. Devi
46.	EASAI BHAGYA LAXMI	II/ECE	E. B. laxmi
47.	GEDALA MARY MANI	II/ECE	G mary
48.	GUNA TEJESWARI	II/ECE	G. Tejeswari
49.	GUNTREDDI SUSMITHA	II/ECE	Susmitha G
50.	GURUGUBELLI VENKATA HYMAVATHI	II/ECE	G. Venkata
51.	JANAM VENUGOPAL	II/ECE	J. Venug
52.	MURLA SAI KUMARI	II/CSE	M. Sai Kumari
53.	NAIDU BHARGAVI	II/CSE	N. Bhargavi
54.	NANNI ASHADOLAI	II/CSE	A. Nanni
55.	PANDURU RAKESH	II/CSE	P. Rakesh
56.	PANGI MAMATHA	II/CSE	Mamatha
57.	PASUPUREDDY GOWTHAMI	II/CSE	P. Gowthu
58.	PATHINA DANTESWARA RAO	II/CSE	P. Dantesw. Rao
59.	PATTIKA MANISHA	II/CSE	P. Manisha
60.	RAGHUPATRUNI SAI SANTOSHI DARSHINI	II/CSE	R. Sai santhoshi
61.	ROUTHU SAIKUMAR	II/CSE	R. Saikumar
62.	SANTRO SUMAN KUMAR	II/CSE	S. Sumankumar
63.	SAVALAPURAPU SUKANYA	II/CSE	S. Sukanya
64.	SIGATAPU PRADEEPTHI	II/CSE	S. Pradeepthi
65.	BONGU MANIKANTA REDDY	I/ECE	B. Mani
66.	BURADA SAI SEETHA RAM MOHAN	I/ECE	B. Sai
67.	CHENCHALA DINESH	I/ECE	Ch. Dinesh
68.	CHINTADA SATYA PRASAD	I/ECE	Ch. Satya Prasad
69.	DANETI SWATHI	I/ECE	D. Swathi
70.	DEVARASETTI TANUJA	I/ECE	D. Tanuja
71.	DOLA ASHA RAJU	I/ECE	D. Asha Raju
72.	DOLA PRASANTHI KUMARI	I/ECE	D. prasanthi kumari
73.	GARA LEELARANI	I/ECE	G. Leelarani
74.	GUNA JAYARAM	I/ECE	G. Jayaram
75.	CHINNALA SAIKUMARI	I/CSE	Ch. Saikumari
76.	CHINTADA SHARMILA	I/CSE	Ch. Sharmila
77.	CHINTALA MOUNIKA	I/CSE	Ch. Mouni
78.	CHODIPILLI ROHIT	I/CSE	C. Rohit
79.	DHAVALA KAVYA	I/CSE	D. Kavya
80.	DHAVALA SAI SIREESHA	I/CSE	D. Sai Sireesha
81.	DUPPATLA NIKHIL	I/CSE	D. NIKHIL
82.	GAINEDI MONIKA PRIYA	I/CSE	G. M. Priya
83.	GANDETI ASWINI	I/CSE	G. Aswini
84.	GEDELA RAJA SEKHAR	I/CSE	G. Raja
85.	CHINTALA MOUNIKA	I/CSE	C. Mouni

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86.	CHODIPILLI ROHIT	I/CSE	Ch. Rohit
87.	DHAVALA KAVYA	I/CSE	D. Kavya
88.	DHAVALA SAI SIREESHA	I/CSE	D. Sai

Nagaraju
NSS PO

PRINCIPAL
Sri Venkateswara College of Engineering & Technology
ETCHERLA, Srikakulam-532410 (A.P)

CERTIFICATE *OF* COMPLETION

This is to certify that

Sri Venkateswara College of Engineering & Technology

---

has successfully completed

CARBON FOOTPRINT & ENERGY AUDIT

The study was completed by Rekhapalli Environmental Solutions & Technologies Pvt Ltd

Dr Rekhapalli Srinivasa Rao

Green, Eco & Energy Lead Auditor
Certified ISO-14001 Auditor

Issued by

Rekhapalli Environmental Solutions & Technologies Pvt Ltd

January 2022

SRI VENKATESWARA COLLEGE OF ENGINEERING & TECHNOLOGY

NH 16, ETCHERLA, SRIKAKULAM, ANDHRA PRADESH 532410

CARBON FOOTPRINT AND ENERGY AUDIT

CONTENTS

Acknowledgements

REST Pvt Ltd

Dr Rekhapalli Srinivasa Rao
Green, Eco & Energy Lead Auditor
Certified ISO-14001 Auditor

23 Jan 2022

Carbon Footprint & Energy Audit

The REST Pvt Ltd acknowledges with thanks the cooperation extended to our team for completing the study at Sri Venkateswara College of Engineering and Technology (SVCET).

The interactions and deliberations with SVCET team were exemplary and the whole exercise was thoroughly a rewarding experience for us. We deeply appreciate the interest, enthusiasm, and commitment of SVCET team towards environmental sustainability.

We are sure that the recommendations presented in this report will be implemented and the SVCET team will be further improve their environmental performance.

Kind regards

Your sincerely

Dr Rekhapalli Srinivasa Rao

Green, Eco & Energy Lead Auditor
Certified ISO-14001 Auditor
REST Pvt Ltd

Executive Summary

The growth of countries across the world is leading to increased consumption of natural resources. There is an urgent need to establish environmental sustainability in every activity we do. In a modern economy, environmental sustainability will play a critical role in the very existence of an organization.

An educational institution is no different. Built environment, especially an educational institution, has a considerable footprint on the environment. Impact on the environment due to energy consumption, water usage and waste generation in an educational institute is prominent. Therefore, there is an imminent need to reduce the overall environmental footprint of the institution.

As an Institution of higher learning, Sri Venkateswara College of Engineering and Technology (SVCET) firmly believes that there is an urgent need to address the environmental challenges and improve their environmental footprint.

True to its belief, SVCET has installed small quantity of solar powered panels and installed LED lights,REST Pvt Ltd team congratulates SVCET team for their efforts.

Keeping SVCET work in energy efficiency, we recommend the following to be taken by the competent team at SVCET:

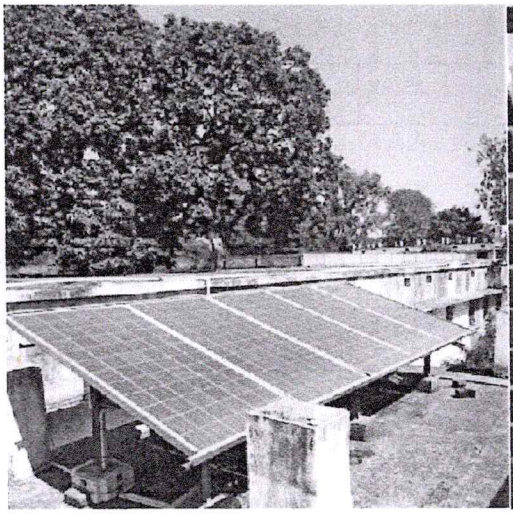
Work towards achieving carbon neutrality: NDC emphasizes creating an additional carbon sink of 2.5 to 3 billion tonnes of CO2 equivalent through additional forest and tree cover by 2030. SVCET'snet carbon emission for the year 2021-22 is >50MT CO2e. SVCET should focus on energy efficiency,renewable energy, and carbon sequestration as tools that will enable them to offset the present carbon emissions and achieve carbon neutrality.

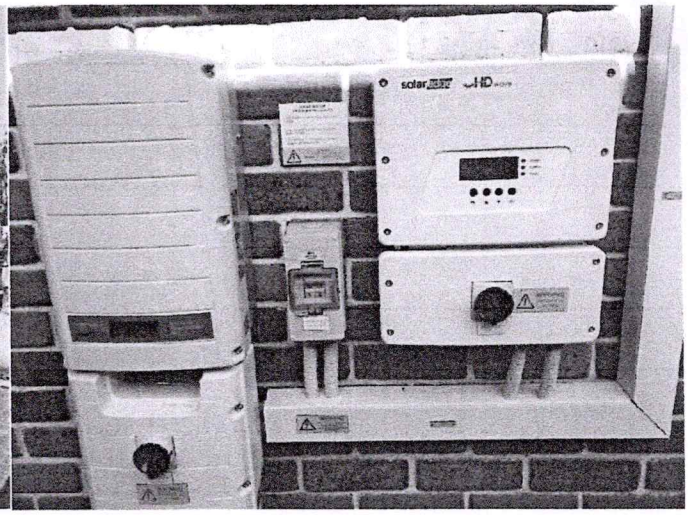
Installation of solar rooftop: Renewable energy plays a very important role in improving the environmental footprint of an organization. By increasing the share of renewable energy in SVCET'senergy portfolio, the overall carbon footprint of the college can be reduced. The roof area available at SVCET is around 4984 sq.ft on roof top. For the available area, roof top occupied with 5 kWp of solar PV Installed. As an initial step, SVCET could look at installing 25kWp of solar PV which can generate 40,500 units per year. Still the renewable share will also reduce the 33 MT CO^2e. For thecurrent assessment year power consumption to reduce, roof top can be utilized for solar power toexpand.

Increase the operating power factor: Presently, based on the energy bills, it is understood that the institution maintains a power factor of 0.65. Since the institution pays electricity bills for the KVAH consumed, the lower the power factor, higher is the energy bill for the same KWH consumption. It is recommended to install capacitor banks to improve the power factor and save energy bill. SVCETcan save up to Rs. 20,000 per month.

Improve energy efficiency of the college: It is recommended to adopt latest energy efficient technologies for reducing energy consumption in fans, lighting, and air conditioners. We recommend the following projects to be implemented at the earliest:

- Replace conventional 80W ceiling fans with energy efficient BLDC fans of 30W
- Install air conditioners energy savers to save energy in split air conditioners
- Replace all conventional tube lights with LED lamps





Carbon Footprint and Energy Audit

Sri Venkateswara College of Pharmacy (SVCET) and REST Pvt Ltd are working together to identify opportunities for improvement in energy efficiency and carbon reduction. This report highlights all the potential proposals for improvement through the audit and analysis of the data provided by SVCET for lighting, air conditioning, ceiling fans, and biogas potential.

The report also details the carbon emissions from college operations. For carbon emissions, scope 1 and scope 2 emissions are calculated from the data submitted by SVCET. The report emphasizes the GHG emission reduction potential possible through a reduction in power consumption.

Submission of Documents

"Carbon footprint and energy audit at SVCET was carried out with the help of data submitted by SVCET team. SVCET team was responsible for collecting all the necessary data and submitting the relevant documents to REST Pvt Ltd for the study.

Note

Carbon footprint and energy audit are based on the data provided by SVCET team and discussions the REST Pvt Ltd team had with SVCET team. The scope of the study does not include the exclusive verification of various regulatory requirements related to environmental sustainability.

REST Pvt Ltd has the right to recall the study if it finds (a) major violation in meeting the environmental regulatory requirements by the location and (b) occurrence of major accidents, leading to significant damage to ecology and environment.

Opportunities for improvement

As a part of the overall environmental improvement study at SVCET, carbon footprint calculations were also carried out. The objective of calculating the carbon footprint of the campus is find the present level of emissions from campus operation and what initiatives that the SVCET can take to offset the emissions. By offsetting the emissions, the college can become carbon neutral in the future by adopting energy efficient processes, increase in renewable energy share and tree plantation.

Carbon footprint calculations:

To help delineate direct and indirect emission sources, improve transparency, and provide utility for different types of organizations and different types of climate policies and business goals, three "scopes" (scope 1, scope 2, and scope 3) are defined for GHG accounting and reporting purposes.

For calculating carbon footprint of the campus, Scope 1 & Scope 2 emissions are being considered. Since day scholars use college provided transportation and hostelers stay in campus, Scope 1 and Scope 2 are the highest contributor to overall emissions. For this reason, Scope 3 is not being calculated.

Scope 1: Direct GHG Emissions

Direct GHG emissions occur from sources that are owned or controlled by the company, for example, emissions from combustion in owned or controlled DG sets, canteen, vehicles, etc.; emissions from chemical production in owned or controlled process equipment. Direct CO2 emissions from the combustion of biomass shall not be included in scope 1 but reported separately.

SVCET Scope 1 emissions for 2021-22:

Sources of Scope 1 emissions in SVCET:

1) Diesel used for college-owned transportation: 50,000 liters/year

2) Diesel consumption for the generator for the assessment year 2021-22 is minimum (included in above consumption).

3) LPG used for canteen: 144cylinders/year

Scope 2: Electricity Indirect GHG Emissions

Scope 2 accounts for GHG emissions from the generation of purchased electricity consumed by a company. Purchased electricity is defined as electricity that is purchased or otherwise brought into

the organizational boundary of the company. Scope 2 emissions physically occur at the facility where electricity is generated.

SVCET Scope 2 emissions for 2022: Electricity purchased from grid.

Develop a roadmap to increase contribution of renewable energy in the overall energy consumption

To have a continued focus on increasing renewable energy utilization to 100% which will also lead to reduction in GHG emissions, it is suggested to develop a detailed roadmap on RE utilization. The road map should broadly feature the following aspects -

- Renewable energy potential of SVCET and the maximum offset that can be achieved at SVCET
- Percentage substitution with renewable energy that SVCET wants to achieve in a specified timeframe

Key tasks that need to be executed to achieve the renewable energy target

- Specific financial break up for each of the projects highlighting the amount required, available and the utilization status as on date
- A regular review mechanism to ensure progress along the lines of the roadmap should be framed
- The roadmap should also highlight important milestones/key tasks, anticipated bottle SVCET &proposed

Renewable energy roadmap should be used as a base to frame GHG emissions reduction target

It is suggested to use the developed renewable energy roadmap to correlate the GHG reduction that each of the renewable energy project will achieve. This approach will provide a base to set targets for reduction in GHG emissions. The action plan for renewable energy will shoulder the action plan for GHG emissions reduction and work towards achieving carbon neutrality.

Explore the option of other onsite and offsite renewable energy projects

The renewable energy field has been witnessing many private investors due its increased market demand and attractive policies in many states. There are Renewable Energy Independent Power Producers (RE IPPs) who have installed RE based power plants like wind, small hydro and solar PV. GOC can consider having a long-term power purchase agreement with these RE IPPs in purchasing fixed quantity of power for a period of 5 to 10 years.

"Evolve a system to monitor the implementation of various GHG mitigation opportunities SVCET hasan action plan to reduce its GHG emissions. SVCET should also evolve a system to monitor the implementation of various GHG mitigation opportunities. It is recommended to use a Gantt chart to mark out the action plan for the activities and track its implementation. Gantt chart will serve as an excellent way to instantly monitor and comprehend all different tasks in one place which would ease tracking of implementation.

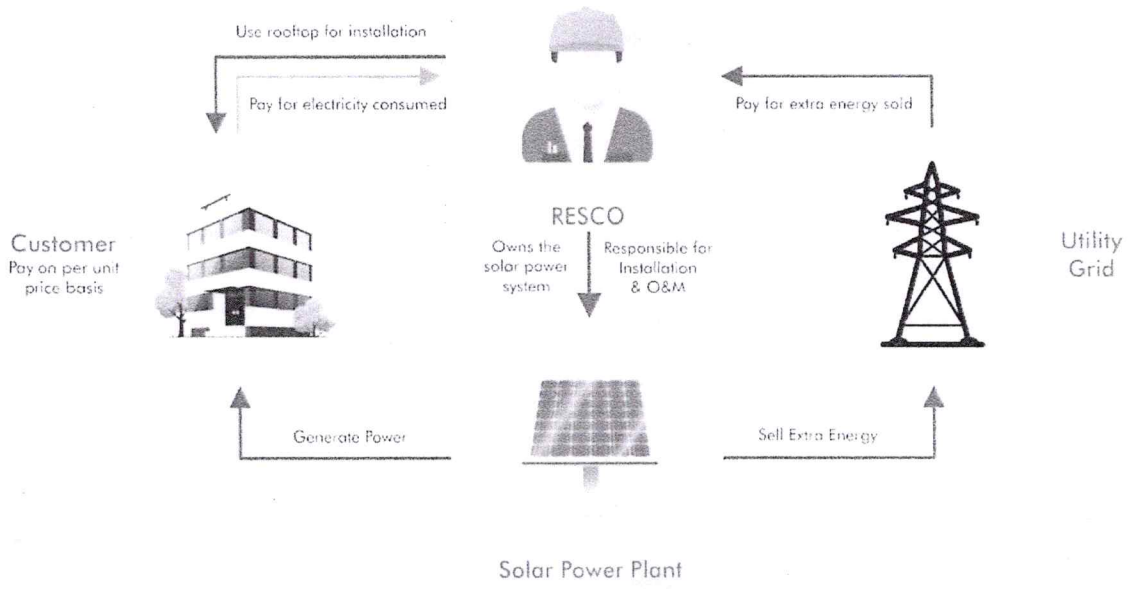
Calculation for Installation of 25 kWp of Solar PV in SVCET campus

Renewable energy is one of the important steps to be taken up by the college to reduce their overall carbon footprint. Based on the details provided by SVCET team, The roof area available at SVCET is around 4984 sq.ft on roof top. For the available area, roof top occupied with 5 kWp of solarPV Installed. As an initial step, SVCET could look at installing 25kWp of solar PV which can generate 40,500 units per year. However, for report calculation, only 25 kWp capacity is considered.

A renewable energy capacity of 25 kW of solar panel may be installed can generate 40,500 units of electricity per year. Additionally, 25 kWp of solar rooftop can offset 33 MT CO2e per annum. RESCO model for solar rooftop installation:

A Renewable Energy Service Company (RESCO) is an ESCO Energy service company which provides energy to the consumers from renewable energy sources. RESCO or BOOT model is about pay as Ju consume the electricity.

- Solar Power Plant is owned by the RESCO or Energy Company
- Customer must sign a Power purchase Agreement (PPA) with actual investor at mutually agreed tariff and tenure
- Customer only pays for electricity consumed
- RESCO developer is responsible for its annual operations & maintenance (O&M)
- The RESCO gets the benefit by selling the surplus power generated to the DISCOM



Source: www.bluebirdsolar.com

Energy Efficiency

Annual energy consumption of SVCET campus is from 1500kWA supply. There are major blocks in the campus which consumes energy for their operation. Major energy consumers are:

1. Fans

2. Air conditioners

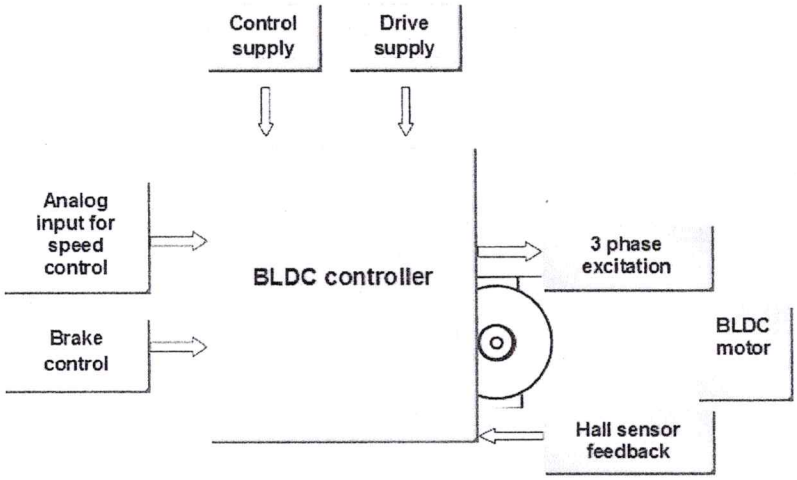
Replace conventional tube lights with LED lamps

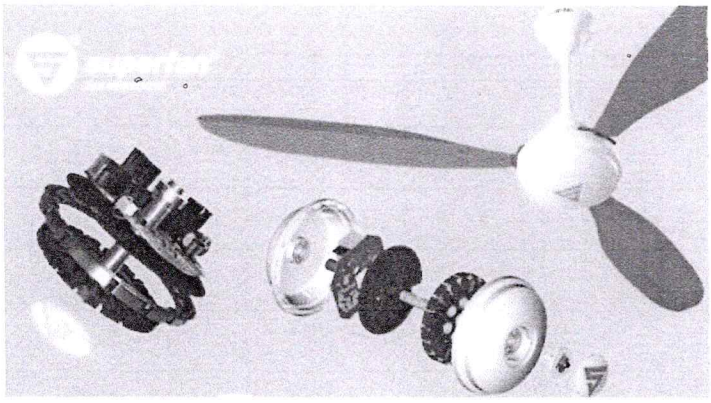
Replace Conventional Ceiling Fans with Energy Efficient BLDC Fans

During the Energy Audit at SVCET, a detailed study was carried out to identify the potential for replacing the existing ceiling fans with BLDC super fans. There is 11.2kW power consumption by fans operating in SVCET campus.

Instead of conventional ceiling fans, latest technology BLDC fans which consume only 30W can be installed in the newly constructed building. A brushless DC (BLDC) motor is a synchronous electric motor powered by direct-current (DC) electricity and having an electronic commutation system, rather than a mechanical commutator and brushes. A BLDC motor has an external armature called the stator, and an internal armature called the rotor.

The rotor can usually be a permanent magnet. Typical BLDC motor-based ceiling fan has much Letter efficiency and excellent constant RPM control as it operates out of fixed DC voltage. The proposed BLDC motor and the control electronics operate out of 24V DC through an SMPS having input AC which can vary from 90V to 270V. The operational block diagram of a BLDC motor is as follows:





With the replacement of existing ceiling fans with Super Fans the energy consumption is likely to reduce by 55% per fixture. Considering 100 fans being replaced with super-efficient BLDC fans, 3.50 kW can be saved. Considering the average operating hours to be 2000 and unit cost as Rs. 9.0, the calculations are as follows:

Total power consumption by fans in college	:	11.2kW
No. of fans considered for calculation	:	100 (First cycle of change)
Energy consumption per fan	:	80 W
Total energy consumption of fans	:	80W X 100 fans
	:	8 kW
super-efficient BLDC fans energy consumption:		30 W
Savings from 80W to 30 W	:	55%
Total savings in fans energy consumption	:	55% of 8kW
	:	4.4 kW
Savings per year	:	4.4 kW x 2000 hrs X Rs. 9.0/unit
	:	Rs. 0.792 Lakhs
Investment	:	Rs. 2, 50,000
	:	38 months

Annual emission reduction potential in case of replacing 50% fans : 20MT CO_2

Install Air conditioners energy saver for spilt air conditioners:

Present status: As per the data obtained from SVCET team, the campus has majorly 8 Ton of Refrigeration units installed.

Recommendation:

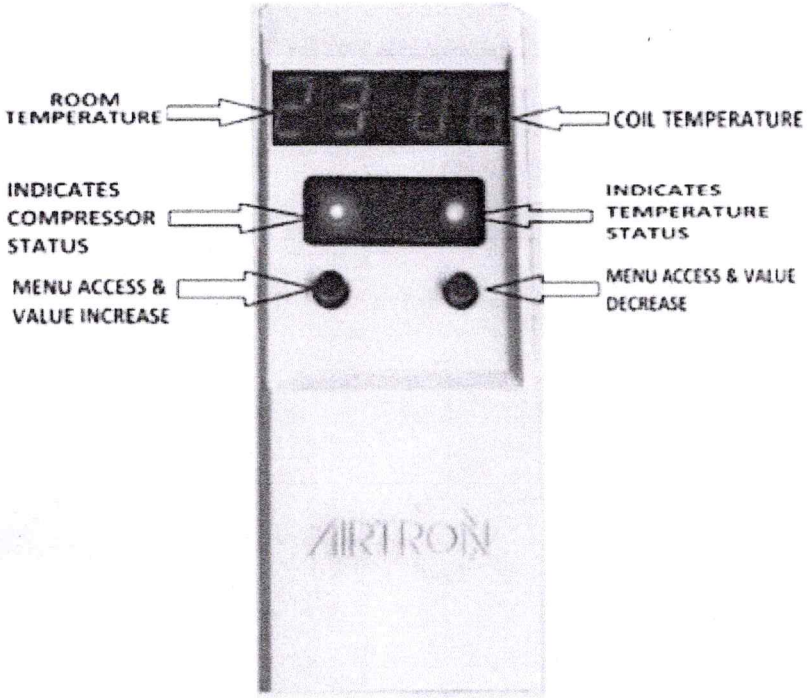
We recommend installing "Airtron", an energy saver that can be installed at every individual unit of AC. The Airtron is the world's most advanced AC SAVER, with all the controls of a Precision AC. The Airtron's dual sensors reference the Room and Coil & Ambient Temp, and uses complex, multiple algorithms in a "closed-loop circuit" to reduce the Compressor Run-Time, to ensure the high savings while maintaining and displaying the Set temperature accurately. The Airtron is Programmable for geographical location and climate and adapts automatically to changes in season and ambient conditions.

This unique device has been developed on Patent-Published technology and approved by leading MNC'S, PSU'S and Govt. Departments. The Airtron is validated by EESL (Energy Efficiency Services Ltd.), Ministry of Power, Government of India, for 44% savings. The Airtron has been validated on all AC's- Inverters, 5 Star, Splits, Multi-Splits, Packages, ducts, Windows, Cassettes from 1.0 - 20.0 TR, LG ltd, Videocon Ltd, Tata Communications, L&T, Nestle, Ashok Leyland etc. The AIRTRON comes with a Remote for setting the Room Temperature, and in a Non-Flammable Polycarbonate Enclosure, with SMPS Power Supply, to tolerate w ide Voltage and Current fluctuations, Surges, Spikes and Sags.

In our case, Airtron installation can reduce the energy consumption of each fixture by 15% on a conservative basis. For a total energy consumption, for air conditioners, as 20 units per hour, 3 units per hour can be saved. It is recommended to install Airtron energy saver in a phase wise manner preferably in the batches of 10 units.

Saving Calculation: Considering the operating hours to be 2000 and unit cost as Rs 9.0/-.

- Monetary annual savings : Rs 45,000/-
- Total investment : Rs 80,000/-
- Payback period : 22 months (2 years)
- Annual emission reduction potential: 4.92 MT CO2



Replace Conventional Lamps with LED Lamps

As per the data submitted, the total number of all the lighting bulbs & fixtures installed are

1. LED Tube Lights : 0 Watts
2. LED bulbs : 440 Watts
3. Lights : 0 Watts

Under failure replacement policy, at least 130 lamps can be changed in the first year.

Types of fixtures	36W Tube
No of fixtures	130
No of hours in Operation	2000

The campus should be keen in harnessing the day lighting available thereby reducing the use of artificial lighting.

Based on the occupancy, monitoring should be ensured to reduce excessive consumption of energy.

Major savings in energy through lighting fixtures can be achieved by replacing all the above existing fixtures with LED's meeting the required LUX levels. The LED's being less energy consuming while maintaining the equivalent lux is the more sustainable option. The replacement of lighting fixtures should be done as per failure replacement policy i.e. change the old fixture with LED when it fails

Advantages of LED

- Lower energy consumption: The energy consumption of LEDs is low when compared to the other conventional sources for the same amount of Lumen output.

Performance comparison of different type lights

Type of Lamp	Lumen/Watt	CRI	Life hours
HPSV lamps	90-120	Bad (22-25)	15,000-20,000
Metal Halide lamps	65-100	Good (65-90)	18,000
LED lamps	100-150	Very Good (>80)	10,000-12,000

Conclusion

SVCET has initiated few energy efficiency activities in their campus. While REST Pvt Ltd appreciatesthe SVCET team for their efforts, we would like to emphasize that opportunity exists further reduce the energy consumption. Installation of renewable energy is to be given major focus. RESCO model can be adopted to install renewable energy without upfront capital investment. We in REST Pvt Ltdare sure that all the recommendations mentioned in the report will be implemented by SVCET teamand the overall environmental performance of the campus will be improved.

Calculations are as follows:

Existing Lighting fixtures	36W
Existing power consumption(kW)	4.5kW (130lamps)
Proposed LED wattage (W)	15
LED power consumption (kW)	1.95kW
Energy saving (kW)	2.55kW
Opearting hours	2000

Annual monetary savings : Rs 38,250/-

Investment needed : Rs 90,000/-

Payback period : 2.5 years

Annual Emission reduction potential : 4.18MT of CO_2.

CERTIFICATE *OF* COMPLETION

This is to certify that

Sri Venkateswara College of Engineering & Technology

---

has successfully completed

ENVIRONMENTAL AUDIT

(WATER & WASTE MANAGEMENT)

The study was completed by Rekhapalli Environmental Solutions & Technologies Pvt Ltd

Dr Rekhapalli Srinivasa Rao

Green, Eco & Energy Lead Auditor
Certified ISO-14001 Auditor

Issued by

Rekhapalli Environmental Solutions & Technologies Pvt Ltd

January 2022

SRI VENKATESWARA COLLEGE OF ENGINEERING & TECHNOLOGY

NH 16, ETCHERLA, SRIKAKULAM, ANDHRA PRADESH 532410

ENVIRONMENTAL AUDIT
(WATER & WASTE MANAGEMENT)

CONTENTS

Acknowledgements

REST Pvt Ltd

Dr Rekhapalli Srinivasa Rao
Green, Eco & Energy Lead Auditor
Certified ISO-14001 Auditor

23 Jan 2022

Environmental Audit (Water & Waste Management)

The REST Pvt Ltd acknowledges with thanks the cooperation extended to our team for completing the study at Sri Venkateswara College of Engineering and Technology (SVCET).

The interactions and deliberations with SVCET team were exemplary and the whole exercise was thoroughly a rewarding experience for us. We deeply appreciate the interest, enthusiasm, and commitment of SVCET team towards environmental sustainability.

We are sure that the recommendations presented in this report will be implemented and the SVCET team will be further improve their environmental performance.

Kind regards

Your sincerely

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Executive Summary

The growth of countries across the world is leading to increased consumption of natural resources. There is an urgent need to establish environmental sustainability in every activity we do. In a modern economy, environmental sustainability will play a critical role in the very existence of an organization.

An educational institution is no different. Built environment, especially an educational institution, has a considerable footprint on the environment. Impact on the environment due to energy Consumption, water usage and waste generation in an educational institute is prominent. Therefore, there is an imminent need to reduce the overall environmental footprint of the institution.

As an Institution of higher learning, Sri Venkateswara College of Engineering and Technology (SVCET)firmly believes that there is an urgent need to address the environmental challenges and improve their environmental footprint.

True to its belief, SVCET has implemented rainwater harvesting in the campus. Continuing with rainwater harvesting, the college can also investigate the following recommendations:

- **Attain water positive status:** SVCET should focus on capturing the harvested rainwater to substitute freshwater consumption, work on sustainable groundwater beyond the fence and create a framework towards attaining water positive status over a period. Presently, SVCET is consuming nearly 1200 liters of fresh water per day. Since metering is not available, the water consumption is calculated rather than measure value. The first step is to increase the water conservation activities in the campus to reduce water consumption at source. The next step is to increase the rainwater harvesting capacity to completely offset the freshwater requirements of the plant. SVCET can also explore adopting lakes, desalting of ponds and restoration of water bodies in localities surrounding the campus. Water getting harvested in those structures can offset the freshwater consumption of the college.
- **Install water efficient fixtures:** The best way to conserve water is at the source. Therefore, SVCET will have to install water efficient fixtures to reduce water consumption. Some of the water efficient fixtures are:
    - Waterless urinals
    - Electronic taps (e-taps)
    - Electronic flush urinals (e-flush)
    - Foam taps
    - Spring loaded push taps
    - Low flush cistern

• **Install sewage treatment plant / rootzone treatment:** SVCET uses more than 1200 liters of fresh water per day. Considering that wastage of water is being let to drain without treatment, good opportunity exists to reduce freshwater consumption by treating the sewage water and using the

recycled water for gardening and flushing application. Install biogas plant and phytoremediation in series to recycle water and reduce freshwater consumption.

- **Install water flow meters:** Water flow meters are vital in understating the water consumption patterns of the campus. Presently, the water consumption is calculated rather than being measured. Water flow meters gives an accurate status if water consumption in the campus and from the water consumption values, the roadmap for water conservation activities can be prepared.

- **Segregate waste at source:** SVCET has provided bins for waste collection. SVCET must embark on awareness creation methods to increase the effectiveness of collection and provide more bins for proper waste segregation.

- **Maintenance of waste management yard:** The waste management yard is to be maintained just like raw materials storage room. Waste is nothing but a resource in wrong place. Therefore, by maintaining the waste management yard, quality of wastes can be maintained.

Environmental Audit

SVCET and REST are working together to identify opportunities for improvement in water management, and waste management. This report highlights all the potential proposals for improvement through the audit and analysis of the data provided by SVCET for water consumption and waste management. The report details the process conducted for the analysis such as on ground surveys performed for listing the type of water consumers with consumption per year, types of waste generated and disposal mechanisms.

Submission of Documents

Environmental audit at SVCET was carried out with the help data submitted by SVCET team. SVCET team was responsible for collecting all the necessary data and submitting the relevant documents to REST Pvt Ltd for the study.

Preliminary Study

After the receipt of documents, a desktop review of the data for quality check, followed by preliminary study was carried out by Sustainable Living Inc. In case of discrepancy/inadequacy/non-clarity of data, REST Pvt Ltd team got in touch with the SVCET team for clarification/additional information.

Environmental Audit

Data submitted and collected during the visit was used to assess the water and waste management practices of the campus and finally provide necessary recommendation for environmental improvement.

Note

Environmental audit is based on the data provided by SVCET team. The scope of the study does not include the exclusive verification of various regulatory requirements related to environmental sustainability.

REST Pvt Ltd has the right to recall the study, if it finds (a) major violation in meeting the environmental regulatory requirements by the location and (b) occurrence of major accidents, leading to significant damage to ecology and environment.

Water Conservation

To achieve a water positive status by continuous reduction of freshwater consumption should be the ultimate focus of SVCET. Increased and focused attention should be given to attain water sustainability in future by inculcating the discipline of water conservation.

Fresh water consumption of SVCET : 1200 liters per day

Rainwater harvesting : Carried out for roof area

According to the report, 'Water in India: Situation & Prospects', India is the largest consumer of groundwater in the world with an estimated usage of 230 km^3 per year. Approximately 60 per cent of the demand from agriculture and irrigation, and about 80 per cent of the domestic water demand, is met through groundwater. As per the Department of Drinking Water and Sanitation nearly 90 per cent of the rural water supply is from groundwater sources. This has led to an increased pressure on aquifers and the resulting hydrological imbalance.

Recommendations for water conservation

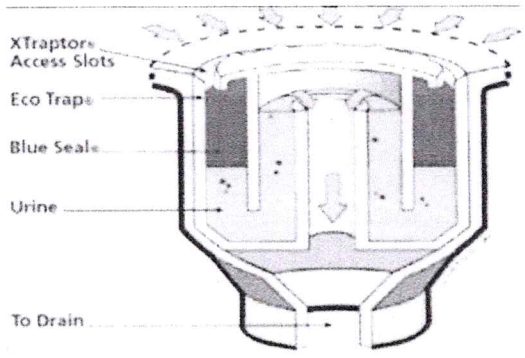
1) Waterless urinals: Waterless urinals look like regular urinals without a pipe for water intake. Men use them normally, but the urinals don't flush. Instead, they drain by gravity. Their outflow pipes conduits to a building's conventional plumbing system. In other words, unlike a composting toilet, which leaves you to deal with your waste, these urinals send the urine to a water treatment plant.

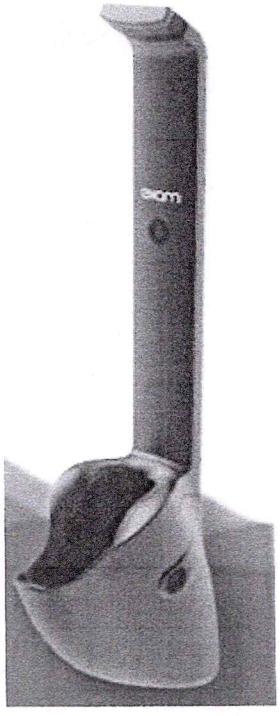
a. Urine flows into the drain insert of the Eco Trap.

b. Inside of the Eco Trap the urine moves through a floating layer of proprietary immiscible Blue Seal liquid, which creates a barrier, preventing sewer gases and urine odours from entering the restroom area.

c. The urine below the Blue Seal barrier overspills into the central tube and travels down into the drain line.

Waterless Urinal



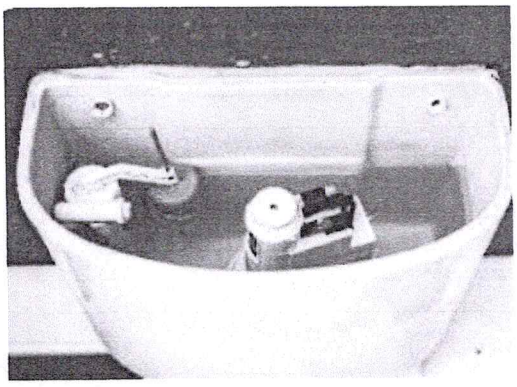


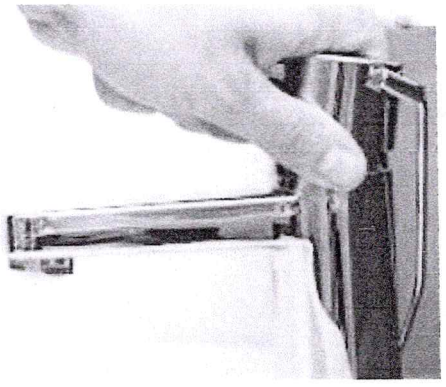
d. Approximately 1500 sanitary uses are possible with just 3 ounces of Blue Seal. When the Blue Seal liquid is gone, it is simply replenished. This only takes about 20 seconds to perform and the Eco Trap is not touched.

e. Urine sediments are retained within the Eco Trap. Replacement is easy and need only be done 2 to 4 times per year depending on traffic to the urinal. As tool called the X-Traptor must be used to remove the Eco Trap. The use of the special tool helps to minimize vandalism. The entire process of replacement only takes 3 to 4 minutes.

Waterless urinals are available for women. Indian manufacturers are supplying waterless urinals technology. Ekameco is one such company providing solution for women waterless urinals. You may visit www.ekameco.com and mail info@ekameco.com for more details on waterless urinals for women.

2) Volume reduction in flush tanks: One simple method is to add a one-liter equivalent water bottle in the flush tank thereby reducing its consumption majorly. One-liter savings in the tank will help to save approximately by 20% and doesn't require any investment.





3) Rainwater harvesting: Water harvesting or more precisely rainwater harvesting is the technique of collection and storage of rainwater at surface or in subsurface aquifer, before it is lost as surface run off. In artificial recharge, the ground water reservoirs are recharged at a rate higher than natural conditions of replenishment. According to a report by the Central Groundwater Board published in 2007, the selection of a suitable technique for artificial recharge of ground water depends on various factors. They include:

a) Quantum of non-committed surface runoff available

b) Rainfall pattern

c) Land use and vegetation

c) Topography and terrain profile

d) Soil type and soil depth

e) Thickness of weathered / granular zones

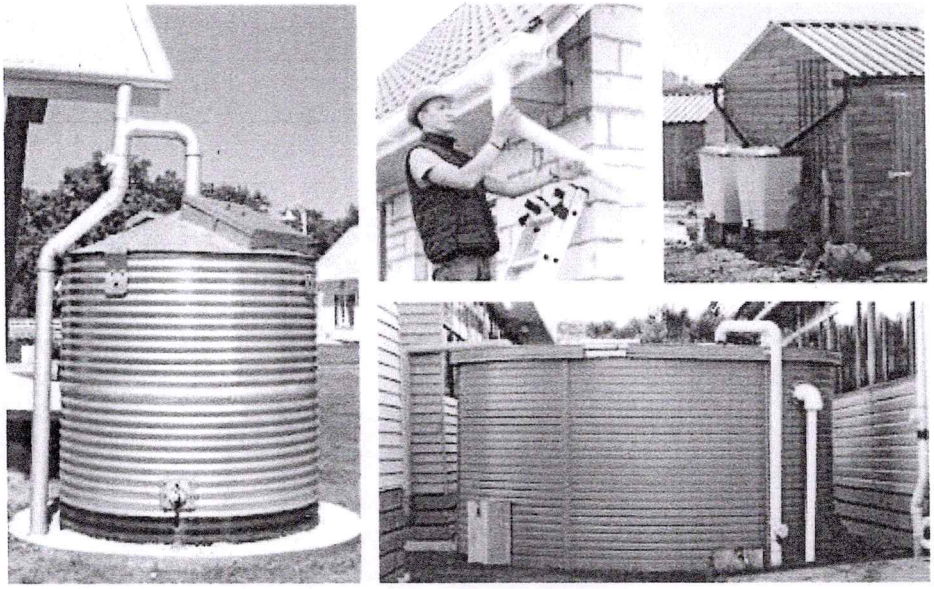
f) Hydrological and hydrogeological characteristics

g) Socio-economic conditions and infrastructural facilities available

h) Environmental and ecological impacts of artificial recharge scheme proposed

Rainwater Harvesting Techniques in Urban Area

In urban areas rainwater is available from roof tops of buildings, paved and unpaved areas. This water could be stored and used to replace freshwater as well as used for recharging the aquifer.



4) Display water balance/conservation status at entrance of all blocks for overall involvement of all students & staff.

It is suggested to display specific water consumption numbers in terms of domestic use at the entrance of each blocks to create awareness among all students and stakeholders visiting the facility. This daily/continuous awareness creation will ultimately help in reduction of water consumption by students.

Water Saving Gadgets

It is suggested to display specific water consumption numbers in terms of domestic use at the entrance of each block to create awareness among all students and stakeholders visiting the facility. This

Electronic Taps (e-taps)

The latest trend in industries is to install electronic taps (e-taps). The advantages of using e-taps

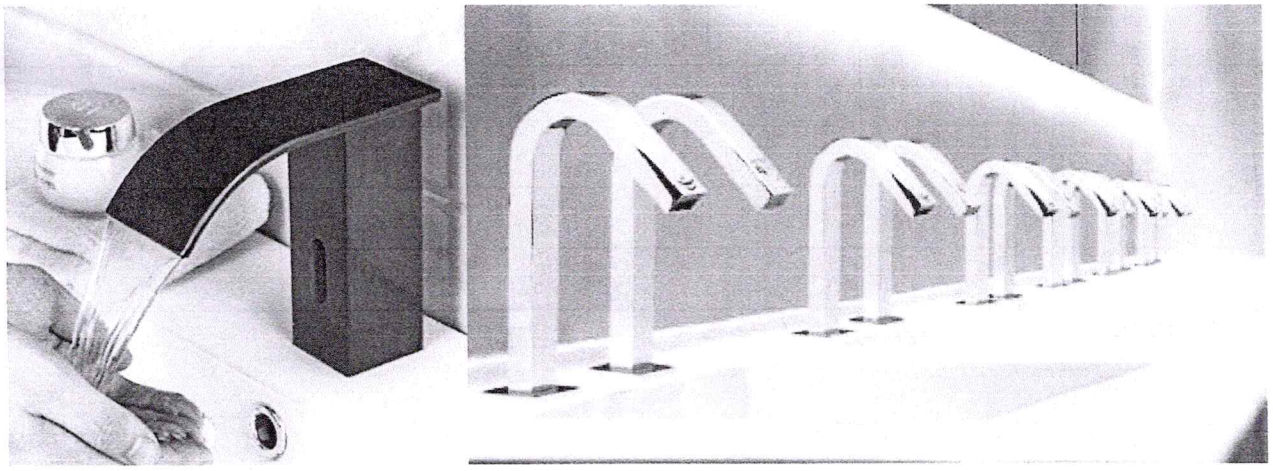
are as mentioned below:

• Unlike conventional taps, there is no twisting or turning in e-taps. They have a sensor, which cuts off water supply completely when not in use. This helps in saving up to 70% water during hand wash.

E-taps enable hands free operation. No fear of cross contamination or contact with germs. E taps score very high on hygiene. It is the most ideal choice for multipurpose and multi-user washrooms.

- E-taps can work efficiently up to raw water TDS of 1,800 ppm.

The touch free electronic taps, available in AC and DC models consume minimal power only. The AC model has an efficient battery back-up, while the DC model runs on just 4 alkaline batteries.



Operation of Electronic Taps

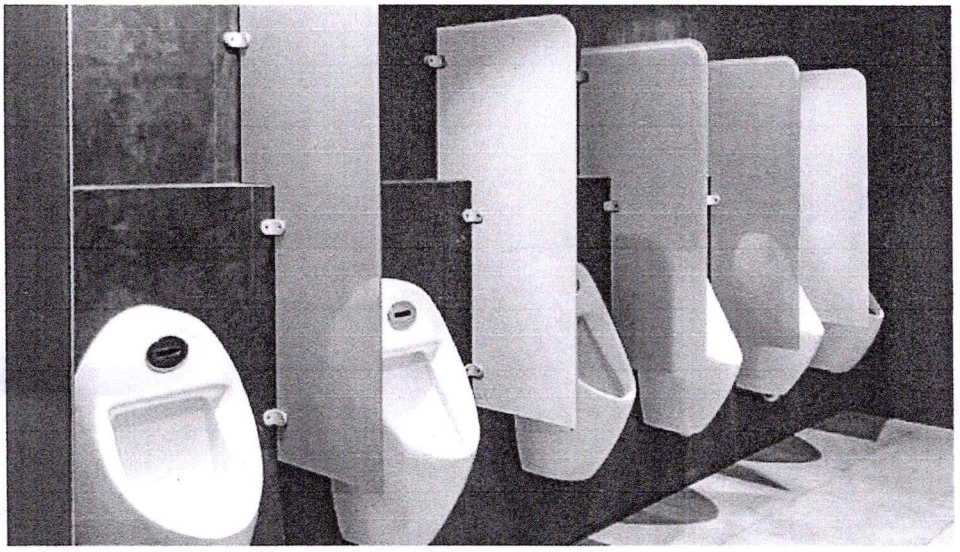
This has been successfully implemented in several hotels & restaurants. Of late, several industries have also started implementing this proposal. Thus, there is a good potential to optimize the Fresh water consumption by replacing the existing taps with e-taps.

Electronic flush (e-flush) urinals

The latest trend in industries is to install e-flush urinals. The advantages of using e-flush urinals are as mentioned below:

- E-flush urinals are fitted with a sensor, which senses the usage and flush with water for few seconds after use. This helps in saving 70% water during urinal flush.
- E-flush urinals enable hands-free operation and score very high on hygiene. It is the most ideal choice for multipurpose and multi-user washrooms.
- E-flush urinals can work efficiently up to raw water TDS of 1,800 ppm.
- The touch free e-flush urinals available in AC and DC models consume minimal power only. The AC model has an efficient battery back-up, while the DC model runs on just 4 alkaline batteries.

Electronic flush urinals

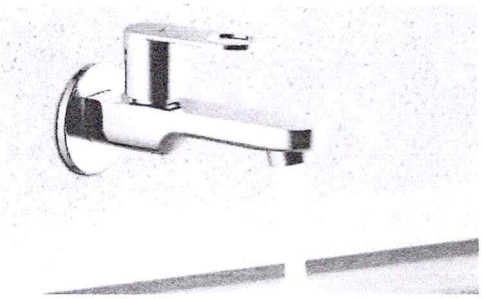


Hand wash

Foam taps

Conventional taps are used in the hand wash areas which results in wastage of large quantities of fresh water. Foam taps are a better fit in these high consumption areas. They consume 25-30% less water than conventional taps.

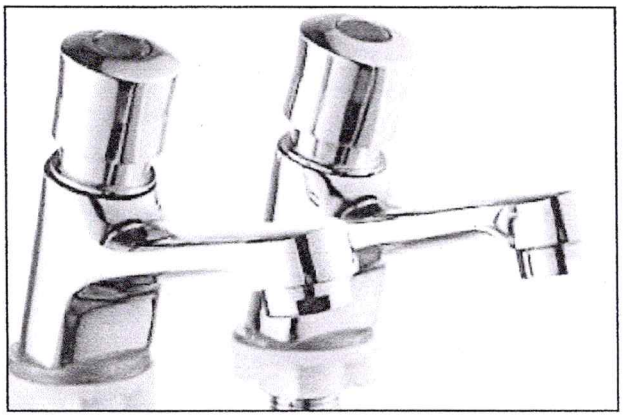
Foam taps



Spring loaded Push taps

Spring loaded push type tap is an alternate device for minimizing hand wash water. The spring-loaded push taps operate with the simple mechanism of pressing the knob for water. The knob is automatically released back to close position in 5-7 seconds. This saves about 30-40% of water compared to the conventional taps.

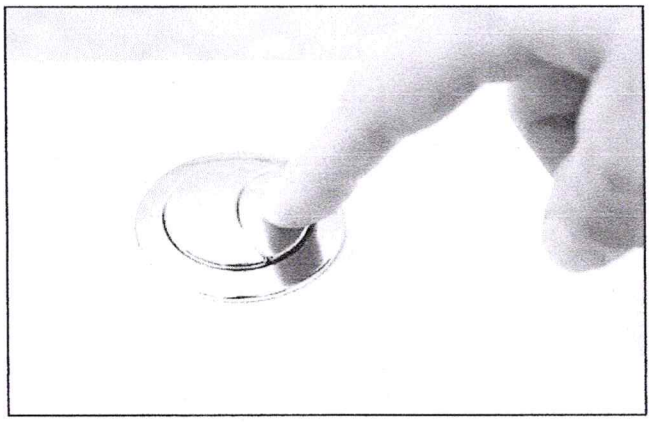
Spring loaded push taps



Low flush cistern

The latest model closets are water efficient and operate in dual mode, with a single flush releasing 2 litres of water and the dual flush releasing 4 litres per flush. This results in excellent water savings.

Low flush cisterns



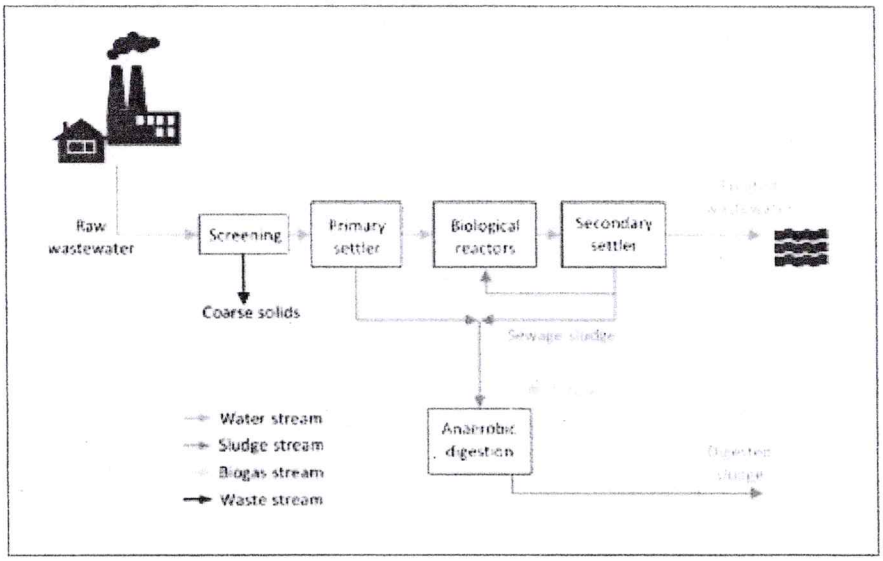
Install sewage treatment plant - Rootzone treatment:

SVCET uses more than 1200 lt of fresh water per day. Considering minimum wastage of water is being let to drain without treatment, good opportunity exists to reduce freshwater consumption by treating the sewage water and using the recycled water for gardening and flushing application. Install biogas plant and phytoremediation in series to recycle water and reduce freshwater consumption. SVCET has not installed any biogas plant for generating biogas from canteen waste.

Presently, sewage water is being let out to the drain without treatment. An opportunity exists to generate biogas from the untreated sewage water and use the generated biogas to substitute LPG used (144cylinders/year) in the college.

Biogas Production Potential of Wastewater

The sewage water is a useful waster as 1% of it in any quantity is a sludge which when subjected to anaerobic digestion will produce biogas. Wastewater is the efluent from household, commercial establishments and institutions, hospitals, industries and so on. Sewage water source contains large amount of organic material which can be efficiently recovered in as sludge which and when subjected to anaerobic digestion, the sludge produces methane gas (biogas).



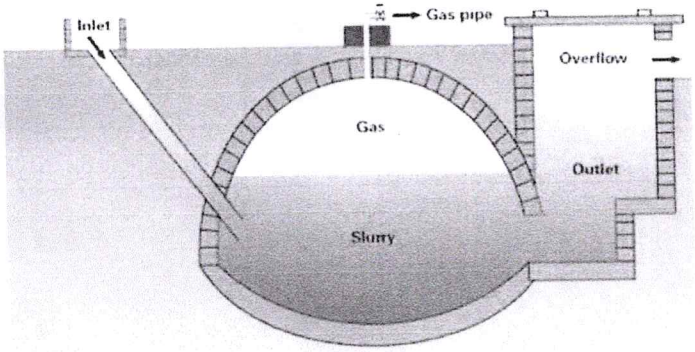
Biogas is a mixture of gases containing 50-75% Methane, and 25-50% Carbon dioxide while 0-10% Nitrogen, 0-3% Hydrogen disulphide and 0-2% Hydrogen may be present as impurities which is produced by anaerobic digestion of organic material i.e. a sequential enzymatic breakdown of biodegradable organic material (Biomass) in the absence of oxygen. The process is usually carried out in a digester tank known as biodigester. Biogas is an important energy source used as cooking gas, to generate electricity, etc. thus producing biogas from wastewater is an efficient and sustainable waste management and renewable energy technique. One of the major environmental problems of the world today is waste management and wastewater constitutes a huge environmental problem to the society thus the need for wastewater treatment to recover and also recycle the recovered water for usage.

The physical process: this is the mechanical treatment of the water that involves removal of debris from the raw wastewater right from the point it enters the plant. The screening and primary settling of debris. Wastewater enters the treatment plant through the inlet chamber from where it is channelled to the coarse screen that removes solid waste.

The biological process: this involve the biotreatment of the sewage in the bioreactors. It is the heart of the treatment plant where a biological process takes place. The bioreactors of a treatment plant are usually large tanks consisting of several mammoth rotors and submersible mixers. While the rotor introduces atmospheric oxygen into the sewage, the submersible mixers keep the biomass in suspension thus several reactions take place in the bioreactors.

From the bioreactor, the sewage enters the sedimentation tank. Here the biological process ends and sludge is separated from water such that the clean water is passed to the disinfection tank for disinfection and onward discharge for use while the sludge is removed by the returned activation sludge (RAS) pump that removes and sends part to the anaerobic digestion chamber while some e return to the anaerobic bioreactor for reactivation.

Production of biogas is an anaerobic digestion whereby microorganisms break down biodegradable material in the absence of oxygen to produce methane/carbon dioxide used to generate electricity and heat. Sludge from the treatment plant (primary and activated sludge) is the main feedstock (biodegradable organic matter) in the biogas production plant of a wastewater treatment plant and the biogas production process involves series of steps. The combine sludge resulting from primary and secondary water treatment is gathered, sieved and thickened to a dry solids content of up to 7% before entering the digesters. Optionally, the sludge can be pre-treated by disintegration technologies with the aim to improve the gas yield. In the anaerobic digestion process, the sludge is pumped into the anaerobic continuously stirred tank reactors where digestion takes place. In the process, microorganisms break down part of the organic matter that is contained in the sludge and produce biogas, which is composed of methane, carbon dioxide and trace gases. The raw biogas produced is dried and hydrogen sulphide and other trace substances removed and burned in burners after treatment. The digested sludge is dewatered, and the water reintroduce into the treatment plant while the remaining undigested matter used for organic fertilizer.



Rootzone treatment:

Root Zone' is a scientific term used to cover all the biological activity among different types of microbes, the roots of plants, water soil and the sun. It consists planted filter-beds containing ravel, sand and soil. The RZWT system utilises nature's way of biologically processing domestic & industrial efluents. This effective technology called Decentralised Wastewater Systems (DEWATS) was developed in 1970s in Germany and has been successfully implemented in different countries mainly in Europe and America.

The root zone wastewater treatment system makes use of biological and physical-treatment processes to remove pollutants from wastewater. Due to its natural process, there is no need to add any input such as chemicals, mechanical pumps or external energy. This reduces both the maintenance and energy costs.

• To accomplish this, the root zone wastewater treatment undertakes the following steps:

• Pre-treatment done in a Settler - a device that separates the liquid from the solid First treatment takes place in a Anaerobic Bafled Reactor - a device with several identical chambers through which the efluent moves from top to bottom.

• Second treatment happens in an Anaerobic Filter - a device filled with a filter material (cinder), through which the efluent moves from top to bottom.

Third treatment takes place in a Planted Gravel Filter - a structure filled with gravel material and planted with water-resistant reed plants, which provide oxygen to the passing efluent.

The Root Zone Wastewater Treatment system takes into account the natural slope of the ground, so that water flows from one device to another without any ternal energy input such as motor pump. Once the reed plants create an established stand, usually after the first growing season, the reed bed requires little or no maintenance. The plant foliage will soon blend naturally into the landscape, ever changing with the seasons and creating a pleasing sight as well!

Install water flow meter:

Water flow meters are vital in understating the water consumption patterns of the campus. Presently, the water consumption is calculated rather than being measured. Water flow meters gives an accurate status if water consumption in the campus and from the water consumption values, the roadmap for water conservation activities can be prepared.

Water Meters would have many advantages:

- Encourage water conservation - important given strain on water resources
- Encourage allocatively efficient distribution. People would consume to where the marginal

  cost = marginal utility

Conclusion

Environmental sustainability is a continuous process and there is always a scope for improvement. SVCET has displayed itself as an advocate of environmental sustainability by getting environmental audit carried out. The organization has implemented several initiatives and measures to enhance efficiency and to optimize resource intensity. The journey ahead in the path towards environmental excellence has immense scope for improvement as brought out by this report.

SVCET needs to focus and work on areas efficiency levels needs to be enhanced. For example: waste management. The observations and suggestions put forth by the report would help the facility in improving its environmental performance and pave way for ecologically sustainable growth.

This report may be taken as a guide and roadmap for achieving higher performance rating in environmental stewardship. As one of the pioneers and leaders SVCET shoulder the task of further 'learning-teaching-learning' to improve, excel, and continue the innovative efforts for success of their students and associates.

CERTIFICATE *OF* COMPLETION

This is to certify that

Sri Venkateswara College of Engineering & Technology

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has successfully completed

CARBON FOOTPRINT & ENERGY AUDIT

The study was completed by Rekhapalli Environmental Solutions & Technologies Pvt Ltd

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Issued by

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January 2022

SRI VENKATESWARA COLLEGE OF ENGINEERING & TECHNOLOGY

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CARBON FOOTPRINT AND ENERGY AUDIT

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23 Jan 2022

Carbon Footprint & Energy Audit

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Kind regards

Your sincerely

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An educational institution is no different. Built environment, especially an educational institution, has a considerable footprint on the environment. Impact on the environment due to energy consumption, water usage and waste generation in an educational institute is prominent. Therefore, there is an imminent need to reduce the overall environmental footprint of the institution.

As an Institution of higher learning, Sri Venkateswara College of Engineering and Technology (SVCET) firmly believes that there is an urgent need to address the environmental challenges and improve their environmental footprint.

True to its belief, SVCET has installed small quantity of solar powered panels and installed LED lights,REST Pvt Ltd team congratulates SVCET team for their efforts.

Keeping SVCET work in energy efficiency, we recommend the following to be taken by the competent team at SVCET:

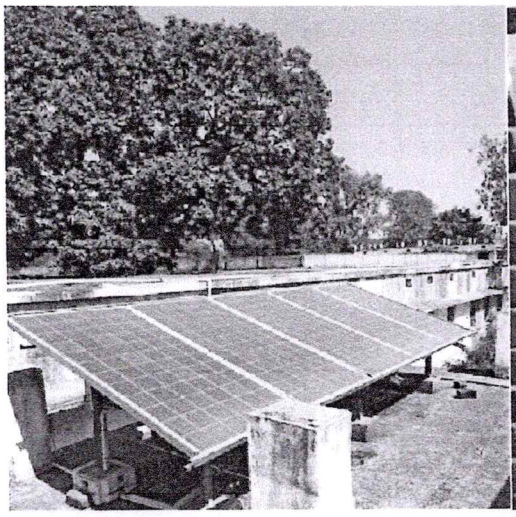
Work towards achieving carbon neutrality: NDC emphasizes creating an additional carbon sink of 2.5 to 3 billion tonnes of CO2 equivalent through additional forest and tree cover by 2030. SVCET'snet carbon emission for the year 2021-22 is >50MT CO2e. SVCET should focus on energy efficiency, renewable energy, and carbon sequestration as tools that will enable them to offset the present carbon emissions and achieve carbon neutrality.

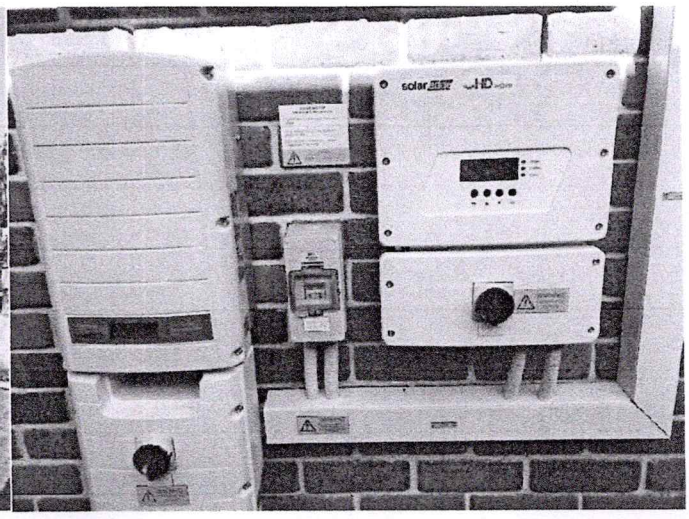
Installation of solar rooftop: Renewable energy plays a very important role in improving the environmental footprint of an organization. By increasing the share of renewable energy in SVCET'senergy portfolio, the overall carbon footprint of the college can be reduced. The roof area available at SVCET is around 4984 sq.ft on roof top. For the available area, roof top occupied with 5 kWp of solar PV Installed. As an initial step, SVCET could look at installing 25kWp of solar PV which can generate 40,500 units per year. Still the renewable share will also reduce the 33 MT CO^2e. For thecurrent assessment year power consumption to reduce, roof top can be utilized for solar power toexpand.

Increase the operating power factor: Presently, based on the energy bills, it is understood that the institution maintains a power factor of 0.65. Since the institution pays electricity bills for the KVAH consumed, the lower the power factor, higher is the energy bill for the same KWH consumption. It is recommended to install capacitor banks to improve the power factor and save energy bill. SVCETcan save up to Rs. 20,000 per month.

Improve energy efficiency of the college: It is recommended to adopt latest energy efficient technologies for reducing energy consumption in fans, lighting, and air conditioners. We recommend the following projects to be implemented at the earliest:

- Replace conventional 80W ceiling fans with energy efficient BLDC fans of 30W
- Install air conditioners energy savers to save energy in split air conditioners
- Replace all conventional tube lights with LED lamps





Carbon Footprint and Energy Audit

Sri Venkateswara College of Pharmacy (SVCET) and REST Pvt Ltd are working together to identify opportunities for improvement in energy efficiency and carbon reduction. This report highlights all the potential proposals for improvement through the audit and analysis of the data provided by SVCET for lighting, air conditioning, ceiling fans, and biogas potential.

The report also details the carbon emissions from college operations. For carbon emissions, scope 1 and scope 2 emissions are calculated from the data submitted by SVCET. The report emphasizes the GHG emission reduction potential possible through a reduction in power consumption.

Submission of Documents

"Carbon footprint and energy audit at SVCET was carried out with the help of data submitted by SVCET team. SVCET team was responsible for collecting all the necessary data and submitting the relevant documents to REST Pvt Ltd for the study.

Note

Carbon footprint and energy audit are based on the data provided by SVCET team and discussions the REST Pvt Ltd team had with SVCET team. The scope of the study does not include the exclusive verification of various regulatory requirements related to environmental sustainability.

REST Pvt Ltd has the right to recall the study if it finds (a) major violation in meeting the environmental regulatory requirements by the location and (b) occurrence of major accidents, leading to significant damage to ecology and environment.

Opportunities for improvement

As a part of the overall environmental improvement study at SVCET, carbon footprint calculations were also carried out. The objective of calculating the carbon footprint of the campus is find the present level of emissions from campus operation and what initiatives that the SVCET can take to offset the emissions. By offsetting the emissions, the college can become carbon neutral in the future by adopting energy efficient processes, increase in renewable energy share and tree plantation.

Carbon footprint calculations:

To help delineate direct and indirect emission sources, improve transparency, and provide utility for different types of organizations and different types of climate policies and business goals, three "scopes" (scope 1, scope 2, and scope 3) are defined for GHG accounting and reporting purposes.

For calculating carbon footprint of the campus, Scope 1 & Scope 2 emissions are being considered. Since day scholars use college provided transportation and hostelers stay in campus, Scope 1 and Scope 2 are the highest contributor to overall emissions. For this reason, Scope 3 is not being calculated.

Scope 1: Direct GHG Emissions

Direct GHG emissions occur from sources that are owned or controlled by the company, for example, emissions from combustion in owned or controlled DG sets, canteen, vehicles, etc.; emissions from chemical production in owned or controlled process equipment. Direct CO2 emissions from the combustion of biomass shall not be included in scope 1 but reported separately.

SVCET Scope 1 emissions for 2021-22:

Sources of Scope 1 emissions in SVCET:

1) Diesel used for college-owned transportation: 50,000 liters/year

2) Diesel consumption for the generator for the assessment year 2021-22 is minimum (included in above consumption).

3) LPG used for canteen: 144cylinders/year

Scope 2: Electricity Indirect GHG Emissions

Scope 2 accounts for GHG emissions from the generation of purchased electricity consumed by a company. Purchased electricity is defined as electricity that is purchased or otherwise brought into

the organizational boundary of the company. Scope 2 emissions physically occur at the facility where electricity is generated.

SVCET Scope 2 emissions for 2022: Electricity purchased from grid.

Develop a roadmap to increase contribution of renewable energy in the overall energy consumption

To have a continued focus on increasing renewable energy utilization to 100% which will also lead to reduction in GHG emissions, it is suggested to develop a detailed roadmap on RE utilization. The road map should broadly feature the following aspects -

- Renewable energy potential of SVCET and the maximum offset that can be achieved at SVCET
- Percentage substitution with renewable energy that SVCET wants to achieve in a specified timeframe

Key tasks that need to be executed to achieve the renewable energy target

- Specific financial break up for each of the projects highlighting the amount required, available and the utilization status as on date
- A regular review mechanism to ensure progress along the lines of the roadmap should be framed
- The roadmap should also highlight important milestones/key tasks, anticipated bottle SVCET &proposed

Renewable energy roadmap should be used as a base to frame GHG emissions reduction target

It is suggested to use the developed renewable energy roadmap to correlate the GHG reduction that each of the renewable energy project will achieve. This approach will provide a base to set targets for reduction in GHG emissions. The action plan for renewable energy will shoulder the action plan for GHG emissions reduction and work towards achieving carbon neutrality.

Explore the option of other onsite and offsite renewable energy projects

The renewable energy field has been witnessing many private investors due its increased market demand and attractive policies in many states. There are Renewable Energy Independent Power Producers (RE IPPs) who have installed RE based power plants like wind, small hydro and solar PV. GOC can consider having a long-term power purchase agreement with these RE IPPs in purchasing fixed quantity of power for a period of 5 to 10 years.

"Evolve a system to monitor the implementation of various GHG mitigation opportunities SVCET hasan action plan to reduce its GHG emissions. SVCET should also evolve a system to monitor the implementation of various GHG mitigation opportunities. It is recommended to use a Gantt chart to mark out the action plan for the activities and track its implementation. Gantt chart will serve as an excellent way to instantly monitor and comprehend all different tasks in one place which would ease tracking of implementation.

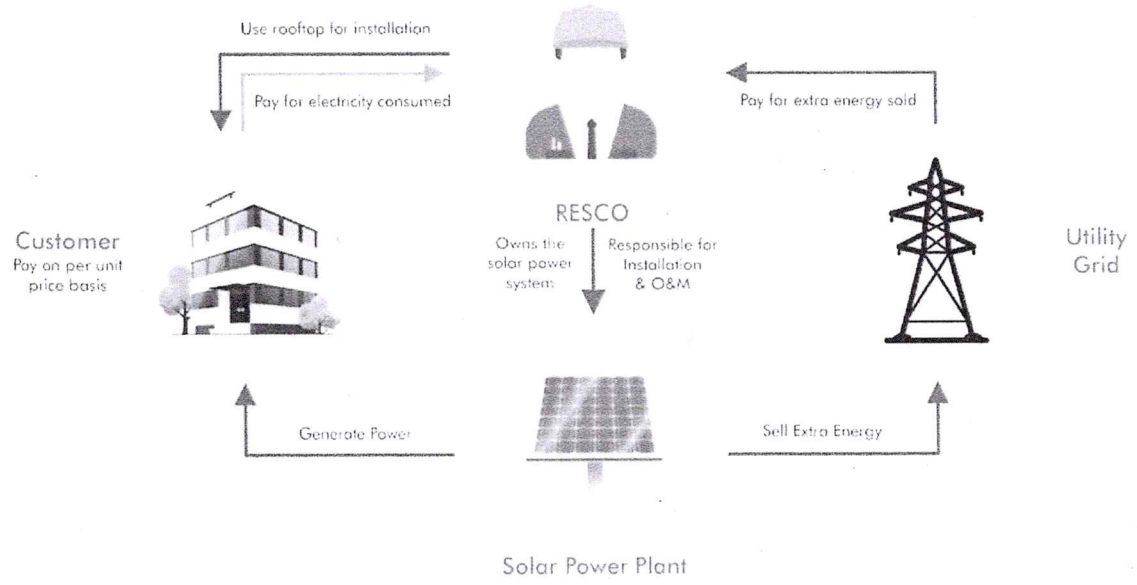
Calculation for Installation of 25 kWp of Solar PV in SVCET campus

Renewable energy is one of the important steps to be taken up by the college to reduce their overall carbon footprint. Based on the details provided by SVCET team, The roof area available at SVCET is around 4984 sq.ft on roof top. For the available area, roof top occupied with 5 kWp of solar PV Installed. As an initial step, SVCET could look at installing 25kWp of solar PV which can generate 40,500 units per year. However, for report calculation, only 25 kWp capacity is considered.

A renewable energy capacity of 25 kW of solar panel may be installed can generate 40,500 units of electricity per year. Additionally, 25 kWp of solar rooftop can offset 33 MT CO2e per annum. RESCO model for solar rooftop installation:

A Renewable Energy Service Company (RESCO) is an ESCO Energy service company which provides energy to the consumers from renewable energy sources. RESCO or BOOT model is about pay as Ju consume the electricity.

- Solar Power Plant is owned by the RESCO or Energy Company
- Customer must sign a Power purchase Agreement (PPA) with actual investor at mutually agreed tariff and tenure
- Customer only pays for electricity consumed
- RESCO developer is responsible for its annual operations & maintenance (O&M)
- The RESCO gets the benefit by selling the surplus power generated to the DISCOM



Source: www.bluebirdsolar.com

Energy Efficiency

Annual energy consumption of SVCET campus is from 1500kWA supply. There are major blocks in the campus which consumes energy for their operation. Major energy consumers are:

1. Fans

2. Air conditioners

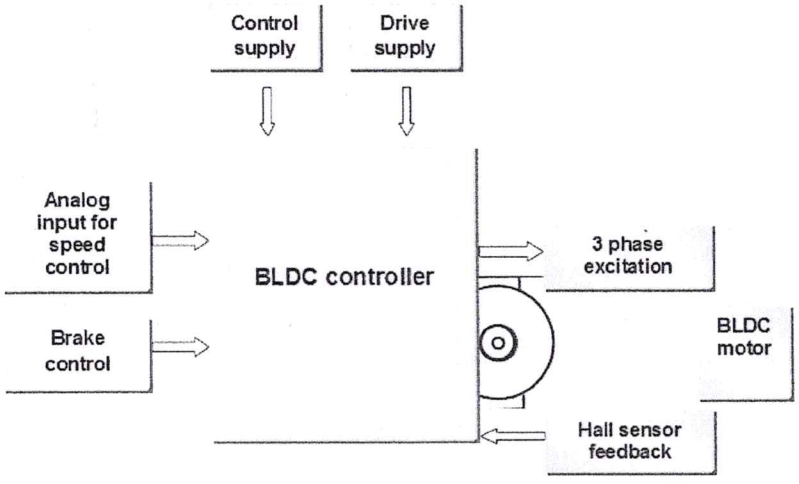
Replace conventional tube lights with LED lamps

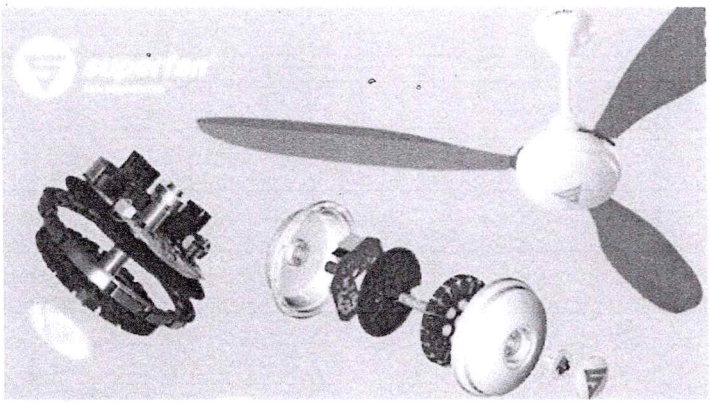
Replace Conventional Ceiling Fans with Energy Efficient BLDC Fans

During the Energy Audit at SVCET, a detailed study was carried out to identify the potential for replacing the existing ceiling fans with BLDC super fans. There is 11.2kW power consumption by fans operating in SVCET campus.

Instead of conventional ceiling fans, latest technology BLDC fans which consume only 30W can be installed in the newly constructed building. A brushless DC (BLDC) motor is a synchronous electric motor powered by direct-current (DC) electricity and having an electronic commutation system, rather than a mechanical commutator and brushes. A BLDC motor has an external armature called the stator, and an internal armature called the rotor.

The rotor can usually be a permanent magnet. Typical BLDC motor-based ceiling fan has much Letter efficiency and excellent constant RPM control as it operates out of fixed DC voltage. The proposed BLDC motor and the control electronics operate out of 24V DC through an SMPS having input AC which can vary from 90V to 270V. The operational block diagram of a BLDC motor is as follows:





With the replacement of existing ceiling fans with Super Fans the energy consumption is likely to reduce by 55% per fixture. Considering 100 fans being replaced with super-efficient BLDC fans, 3.50 kW can be saved. Considering the average operating hours to be 2000 and unit cost as Rs.

9.0, the calculations are as follows:

Total power consumption by fans in college	:	11.2kW
No. of fans considered for calculation	:	100 (First cycle of change)
Energy consumption per fan	:	80 W
Total energy consumption of fans	:	80W X 100 fans
	:	8 kW
super-efficient BLDC fans energy consumption:		30 W
Savings from 80W to 30 W	:	55%
Total savings in fans energy consumption	:	55% of 8kW
	:	4.4 kW
Savings per year	:	4.4 kW x 2000 hrs X Rs. 9.0/unit
	:	Rs. 0.792 Lakhs
Investment	:	Rs. 2, 50,000
	:	38 months

Annual emission reduction potential in case of replacing 50% fans : 20MT CO2

Install Air conditioners energy saver for spilt air conditioners:

Present status: As per the data obtained from SVCET team, the campus has majorly 8 Ton of Refrigeration units installed.

Recommendation:

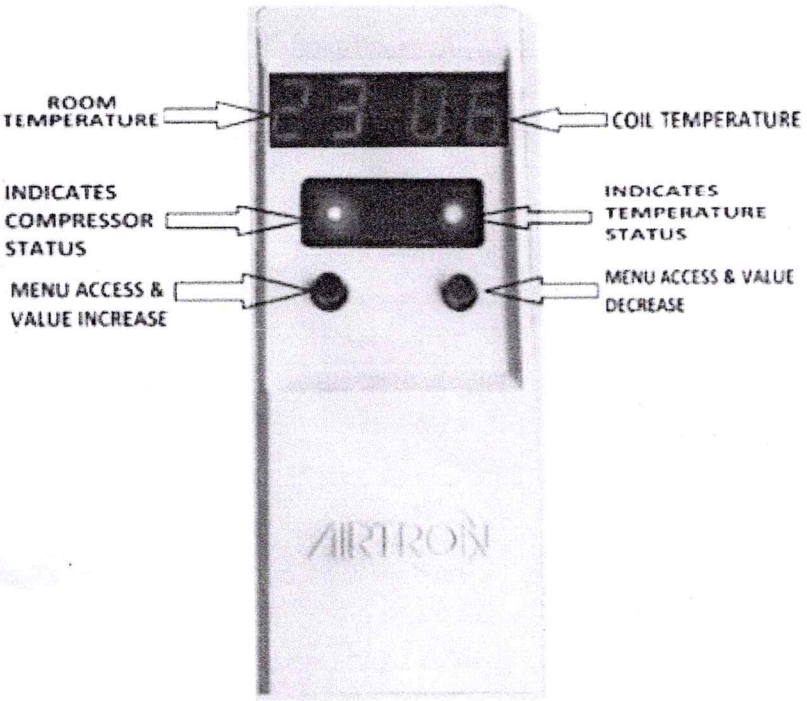
We recommend installing "Airtron", an energy saver that can be installed at every individual unit of AC. The Airtron is the world's most advanced AC SAVER, with all the controls of a Precision AC. The Airtron's dual sensors reference the Room and Coil & Ambient Temp, and uses complex, multiple algorithms in a "closed-loop circuit" to reduce the Compressor Run-Time, to ensure the high savings while maintaining and displaying the Set temperature accurately. The Airtron is Programmable for geographical location and climate and adapts automatically to changes in season and ambient conditions.

This unique device has been developed on Patent-Published technology and approved by leading MNC'S, PSU'S and Govt. Departments. The Airtron is validated by EESL (Energy Efficiency Services Ltd.), Ministry of Power, Government of India, for 44% savings. The Airtron has been validated on all AC's- Inverters, 5 Star, Splits, Multi-Splits, Packages, ducts, Windows, Cassettes from 1.0 - 20.0 TR, LG ltd, Videocon Ltd, Tata Communications, L&T, Nestle, Ashok Leyland etc. The AIRTRON comes with a Remote for setting the Room Temperature, and in a Non-Flammable Polycarbonate Enclosure, with SMPS Power Supply, to tolerate w ide Voltage and Current fluctuations, Surges, Spikes and Sags.

In our case, Airtron installation can reduce the energy consumption of each fixture by 15% on a conservative basis. For a total energy consumption, for air conditioners, as 20 units per hour, 3 units per hour can be saved. It is recommended to install Airtron energy saver in a phase wise manner preferably in the batches of 10 units.

Saving Calculation: Considering the operating hours to be 2000 and unit cost as Rs 9.0/-.

- Monetary annual savings : Rs 45,000/-
- Total investment : Rs 80,000/-
- Payback period : 22 months (2 years)
- Annual emission reduction potential: 4.92 MT CO2



Replace Conventional Lamps with LED Lamps

As per the data submitted, the total number of all the lighting bulbs & fixtures installed are

1. LED Tube Lights : 0 Watts
2. LED bulbs : 440 Watts
3. Lights : 0 Watts

Under failure replacement policy, at least 130 lamps can be changed in the first year.

Types of fixtures	36W Tube
No of fixtures	130
No of hours in Operation	2000

The campus should be keen in harnessing the day lighting available thereby reducing the use of artificial lighting.

Based on the occupancy, monitoring should be ensured to reduce excessive consumption of energy.

Major savings in energy through lighting fixtures can be achieved by replacing all the above existing fixtures with LED's meeting the required LUX levels. The LED's being less energy consuming while maintaining the equivalent lux is the more sustainable option. The replacement of lighting fixtures should be done as per failure replacement policy i.e. change the old fixture with LED when it fails

Advantages of LED

- Lower energy consumption: The energy consumption of LEDs is low when compared to the other conventional sources for the same amount of Lumen output.

Performance comparison of different type lights

Type of Lamp	Lumen/Watt	CRI	Life hours
HPSV lamps	90-120	Bad (22-25)	15,000-20,000
Metal Halide lamps	65-100	Good (65-90)	18,000
LED lamps	100-150	Very Good (>80)	10,000-12,000

Calculations are as follows:

Existing Lighting fixtures	36W
Existing power consumption(kW)	4.5kW (130lamps)
Proposed LED wattage (W)	15
LED power consumption (kW)	1.95kW
Energy saving (kW)	2.55kW
Opearting hours	2000

Annual monetary savings	:	Rs 38,250/-
Investment needed	:	Rs 90,000/-
Payback period	:	2.5 years
Annual Emission reduction potential	:	4.18MT of CO2.

Conclusion

SVCET has initiated few energy efficiency activities in their campus. While REST Pvt Ltd appreciatesthe SVCET team for their efforts, we would like to emphasize that opportunity exists further reduce the energy consumption. Installation of renewable energy is to be given major focus. RESCO model can be adopted to install renewable energy without upfront capital investment. We in REST Pvt Ltdare sure that all the recommendations mentioned in the report will be implemented by SVCET teamand the overall environmental performance of the campus will be improved.