1.3.1. Institution integrates cross cutting issues relevant to gender, environment and sustainability, human value and professional ethics in to the curriculum.

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SAPTHAGIRI COLLEGE OF ENGINEERING
Department Of Civil Engineering
Curriculum plan and delivery

Sl. No.	Syllabus	Curriculum	Deployment Strategy and Tool	Cross-cutting issues integrated	PO, PSO and CO	Attainments	Attainment Verification
1.	Environmental studies	1. To identify the major challenges in environmental issues and evaluate possible solutions. 2.Develop analytical skills, critical thinking and demonstrate socio-economic skills for sustainable development. 3.To analyze an overall impact of specific issues and develop environmental management plan.	Chalk and Talk method	• Human values • Environmental benefits and effects	**PO6: The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice. **PO7: Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. **PO8: Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice **PO12: Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.	PO6: 90% PO7: 85% PO8: 40% PO12: 90%	▪ Demonstrating concepts of Entrepreneurship and management through a project ▪ objective questions solvation
					PSO3: To apply the knowledge of environmental studies such as water supply engineering, sanitary and sewage engineering, industrial waste water engineering and to know the impact of environmental issues.	PSO3: 90%	
					CO1. Understand the principles of ecology and environmental issues that apply to air, land, and water issues on a global scale, **CO2.**Develop critical thinking and/or observation skills, and apply them to the analysis of a problem or question related to the environment, **CO3.**Demonstrate ecology knowledge of a complex relationship between biotic and abiotic components **CO4.**Apply their ecological knowledge to illustrate and graph a problem and describe the realities that managers face when dealing with complex issues	COA1:95% COA2:99% COA3: 90% COA4: 85%	

Diary

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Sl.No.	Date	Topic/Chapter/ Module	Curriculum	Deployment ategy and Tool	PO, PSO and CO	Attainments	Attainment Verification
1.	14/02/2017 - 28/02/2017	**Module-1** Chapter-1: **Introduction**	1.To identify the major challenges in environmental issues and evaluate possible solutions.	▪ Chalk and Talk method	**PO6: The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice	POA6:85%	▪ Demonstrating concepts of Entrepreneurship and management through a project ▪ objective questions solvation
					PSO3: To apply the knowledge of environmental studies such as water supply engineering, sanitary and sewage engineering, industrial waste water engineering and to know the impact of environmental issues.	PSOA3:70%	
					CO1. Understand the principles of ecology and environmental issues that apply to air, land, and water issues on a global scale,	COA1:95%	
2.	04/03/2017 - 18/03/2017	**Module-2** **Chapter-1:** Natural Resources, Water resources **Chapter-2:** Wealth Material Cycles	1. To identify the major challenges in environmental issues and evaluate possible solutions.	▪ Chalk and Talk method	**PO6: The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice	POA6:40%	▪ Demonstrating concepts of Entrepreneurship and management through a project ▪ objective questions solvation
					PSO3: To apply the knowledge of environmental studies such as water supply engineering, sanitary and sewage engineering, industrial waste water engineering and to know the impact of environmental issues.	PSOA3:50%	
					CO2. Develop critical thinking and/or observation skills, and apply them to the analysis of a problem or question related to the environment,	COA2:99%	
3.	25/03/2017 - 08/04/2017	**Module-3** **Chapter-1:** Environmental Pollution	2.Develop analytical skills, critical thinking and demonstrate	▪ Chalk and Talk method	**PO7: Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.	POA7:75%	▪ Demonstrating concepts of Entrepreneurship and management through a project ▪ objective
					PSO3: To apply the knowledge of environmental	PSOA3:60%	

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		Chapter-2: Global Environmental Issues	socio-economic skills for sustainable development.		studies such as water supply engi··ring, sanitary and sewage engineering, industri... waste water engineering and to know the impact of environmental issues.		questions solvation
					CO3. Demonstrate ecology knowledge of a complex relationship between biotic and abiotic components	COA3: 90%	
4.	11/04/2017 - 22/04/2017	**Module-4** **Chapter-1:** Air Pollution & Automobile **Pollution:** **Chapter-2:** Solid Waste Management,	2.Develop analytical skills, critical thinking and demonstrate socio-economic skills for sustainable development.	▪ Chalk and Talk method	**PO7: Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development **PO12: Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.	POA7:75% POA12:75%	▪ Demonstrating concepts of Entrepreneurship and management through a project ▪ objective questions solvation
					PSO3: To apply the knowledge of environmental studies such as water supply engineering, sanitary and sewage engineering, industrial waste water engineering and to know the impact of environmental issues.	PSOA3: 80%	
					CO4. Apply their ecological knowledge to illustrate and graph a problem and describe the realities that managers face when dealing with complex issues	COA4: 85%	
5.	29/04/2017 - 13/05/2017	**Module-5** **Chapter-1:** Introduction to GIS & Remote sensing, **Chapter-2:** Environmental Acts & Regulations	3.To analyze an overall impact of specific issues and develop environmental management plan.	▪ Chalk and Talk method ▪ PPT	**PO8: Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice	POA8:75%	▪ Demonstrating concepts of Entrepreneurship and management through a project ▪ objective questions solvation
					PSO3: To apply the knowledge of environmental studies such as water supply engineering, sanitary and sewage engineering, industrial waste water engineering and to know the impact of environmental issues.	PSOA3: 40%	
					CO4. Apply their ecological knowledge to illustrate and graph a problem and describe the realities that managers face when dealing with complex issues	COA4: 90%	

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SAPTHAGIRI College of Engineering
Creating Tomorrow

SAPTHAGIRI COLLEGE OF ENGINEERING

Department Of Civil Engineering

Subject: Advanced Surveying

Sl. No.	Syllabus	Curriculum	Deployment Strategy and Tool	Cross-cutting issues integrated	PO, PSO and CO	Attainments	Attainment Verification
1.	Advance Surveying	Apply geometric principles to arrive at solutions to surveying problems. Analyze spatial data using appropriate computational and analytical techniques. Design proper types of curves for deviating type of alignments. Use the concepts of advanced data capturing methods necessary for engineering practice. Choose the data and get the quick information through some applications.	1. Chalk and Talk method 2. PPT	• Environmental benefits and effects • Business Ethics	**PO1: Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. **PO2: Problem analysis**: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. **PO3: Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations. **PO4: Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. **PO5: Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations. **PO9: Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. **PO10: Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.	PO1: 90% PO2: 95% PO3: 65% PO4: 80% PO5: 85% PO9: 80% PO10:90% PO11: 75% PO12: 95%	1.Results of Formative and Summative Assessment 2.Assignment 3. Demonstrating the engineering geology structures, constructions of buildings, dams, etc projects.

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					PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. **PO12: Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.		
					POS1: Expertise in Design and technical areas of Civil Engineering such as Design of RCC Structures, Design of Steel Structures, Design of Composite Structures Materials and pre-stressed concrete structures with a focus on research and innovation. **POS2:** Ability of problem solving by adopting analytical, numerical and experimental skills with awareness of societal impact. **POS4**: To comprehend and apply the ideas of Construction the executives, quality and authority.	PSO1: 90% PSO2: 90% PSO4: 30%	
					CO1: Design and implement the different types of curves for deviating type of alignments. **CO2:** Capture geodetic data to process and perform analysis for survey problems with the use of electronic instruments. **CO3:** Apply the knowledge of geometric principles to arrive at surveying problems. **CO4:** Use the satellite images to get information and aerial photographs to analysis the simple engineering problems. **CO5:** Use modern instruments to obtain geo-spatial data and analyse the same to appropriate engineering problems.	COA1:95% COA2:99% COA3: 90% COA4: 85% COA5 : 90%	

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Diary

Sl. No.	Date	Topic/Chapter/ Module	Curriculum	Deployment Strategy and Tool	PO, PSO and CO	Attainments	Attainment Verification
1.	05/02/2018 - 21/02/2018	**Module-5** Chapter-1: Modern Surveying Instruments	Choose the data and get the quick information through some applications	▪ Chalk and Talk method ▪ PPT	**PO1: Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. **PO2: Problem analysis**: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. **PO3: Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations. **PO5: Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations. **PO12: Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.	PO1: 70% PO2: 95% PO3: 60% PO5: 75% PO12: 90%	▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts of Entrepreneurship and management through a project
					POS1: Expertise in Design and technical areas of Civil Engineering such as Design of RCC Structures, Design of Steel Structures, Design of Composite Structures Materials and pre-stressed concrete structures with a focus on research and innovation. **POS2:** Ability of problem solving by adopting analytical, numerical and experimental skills with awareness of societal impact. **POS4**: To comprehend and apply the ideas of Construction the executives, quality and authority.	PSO1: 90% PSO2: 70% PSO4: 40%	

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					CO5: Use modern instruments to obtain geo-spatial data and analyse the same to appropriate engineering problems.	COA5 : 90%	

2.	22/02/2018 - 08/03/2018	**Module-4** Chapter-1: Aerial Photogrammetry	Use the concepts of advanced data capturing methods necessary for engineering practice.	▪ Chalk and Talk method	**PO1: Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. **PO2: Problem analysis**: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. **PO3: Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations. **PO4: Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. **PO5: Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations. **PO9: Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. **PO11: Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. **PO12: Life-long learning**: Recognize the need	PO1: 70% PO2: 95% PO3: 55% PO4: 80% PO5: 95% PO9: 80% PO11: 65% PO12: 95%	▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts of Entrepreneurship and management through a project

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					for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.		
					POS2: Ability of problem solving by adopting analytical, numerical and experimental skills with awareness of societal impact. **POS4**: To comprehend and apply the ideas of Construction the executives, quality and authority.	PSO2: 80% PSO4: 30%	
					CO4: Use the satellite images to get information and aerial photographs to analysis the simple engineering problems.	COA4: 85%	
3.	09/03/2018 - 29/03/2018	**Module-3** Chapter-1: Introduction to Field Astronomy:	Design proper types of curves for deviating type of alignments.	▪ Chalk and Talk method	**PO1: Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. **PO2: Problem analysis**: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. **PO3: Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations. **PO4: Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. **PO5: Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations. **PO9: Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.	PO1: 80% PO2: 65% PO3: 85% PO4: 60% PO5: 85% PO9: 80% PO11:85% PO12: 55%	▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts of Entrepreneurship and management through a project

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					PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. **PO12: Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.		
					POS2: Ability of problem solving by adopting analytical, numerical and experimental skills with awareness of societal impact. **POS4**: To comprehend and apply the ideas of Construction the executives, quality and authority.	PSO2: 90% PSO4: 30%	
					CO3: Apply the knowledge of geometric principles to arrive at surveying problems.	COA3: 90%	
4.	30/03/2018 - 19/04/2018	**Module-2** Chapter-1: Geodetic Surveying Chapter-2: Theory of Errors	Analyze spatial data using appropriate computational and analytical techniques.	▪ Chalk and Talk method	**PO1: Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. **PO2: Problem analysis**: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. **PO3: Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations. **PO4: Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. **PO5: Modern tool usage**: Create, select, and apply appropriate techniques, resources, and	PO1: 90% PO2: 65% PO3: 60% PO4: 70% PO5: 80% PO11: 75% PO12: 90%	▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts of Entrepreneurship and management through a project

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					modern engineering and IT tools i- 'uding prediction and modelling to comp. engineering activities with an understanding of the limitations. **PO11: Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. **PO12: Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.		
					POS2: Ability of problem solving by adopting analytical, numerical and experimental skills with awareness of societal impact. **POS4**: To comprehend and apply the ideas of Construction the executives, quality and authority..	PSO2: 80% PSO4: 30%	
					CO2: Capture geodetic data to process and perform analysis for survey problems with the use of electronic instruments.	COA2:99%	
5.	20/04/2018 - 10/05/2018	**Module-1** Chapter-1: Curve Surveying	Apply geometric principles to arrive at solutions to surveying problems.	▪ Chalk and Talk method	**PO9 PO1: Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. **PO2: Problem analysis**: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. **PO3: Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations. **PO5: Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including	PO1: 70% PO2: 95% PO3: 65% PO5: 85% PO9: 60% PO10:90% PO11: 75% PO12: 95%	▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts of Entrepreneurship and management through a project

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					prediction and modelling to comp' engineering activities with an understanding o. .e limitations. **PO9: Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. **PO10: Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions. **PO11: Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. **PO12: Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.		
					POS1: Expertise in Design and technical areas of Civil Engineering such as Design of RCC Structures, Design of Steel Structures, Design of Composite Structures Materials and pre-stressed concrete structures with a focus on research and innovation. **POS2:** Ability of problem solving by adopting analytical, numerical and experimental skills with awareness of societal impact. **POS4**: To comprehend and apply the ideas of Construction the executives, quality and authority..	PSO1: 95% PSO2: 70% PSO4: 30%	
					CO1: Design and implement the different types of curves for deviating type of alignments.	COA1:95%	

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SAPTHAGIRI COLLEGE OF ENGINEERING
Department Of Biotechnology
Curriculum plan and delivery

Sl. No.	Syllabus	Curriculum	Deployment Strategy and Tool	Cross-cutting issues integrated	PO, PSO and CO	Attainments	Attainment Verification
1.	Environmental biotechnology (15BT833)	• Empower students To gain basic concepts of environmental biotechnology • Inculcate interdisciplinary Approach of learning to understand cellular processes of waste water treatment, solid waste management. • To comprehend application of basic aspects of biotechnology • Provide information about factors for water, air and soil pollution • Provide information about basic concepts in bioremediation process	3. Chalk and Talk method 4. PPT 5. You tube video on social ,legal and ethical issues related genome analysis 6. YouTube video on successful learner	• Environmental sustainability • Issues of global concern	**PO1:Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems **PO2: Problem analysis**: Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. **PO3: Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with Appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations. **PO11: Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary	POA1:75% PSOA1:	1. Results of Formative and Summative Assessment 2. Assignment 3. Demonstrating concepts Through a project

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					environments. **PO12: Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change **PSO1:** Demonstrate engineering and life science knowledge for understanding complex biotechnological processes and apply these to manage projects and multidisciplinary tasks.		
					CO1: Students are able learn pollutants and its accumulation and detoxification. **CO2:**Students are able learn waste water treatment process and its application in treatment municipal and industries waste water **CO3:** Students are able learn about xenobiotic compounds and their biodegradation and Bioremediation. **CO4**:Students are able learn biocatalysts and its application **CO5:**Students are able learn about Bioxidation and microbial leaching	PCOA1: 80% PCOA2: 80% PCOA3: 80% PCOA11:53 % PCOA12:53%	

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Sl. No.	Date	Topic/Chapter/ Module	Curriculum	Deployment Strategy and Tool	PO, PSO and CO	Attainments	Attainment Verification
1.	11/3/19 to 26/3/19	**Module-1** Introduction to environmental pollutants:	• Empower students To gain basic concepts of environmental biotechnology	▪ Chalk and Talk method ▪ PPT ▪ You tube video	**PO1:Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems **PO12:Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.	POA1:80% POA12:53%	▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts of management through a project
					PSO1:	PSOA1:84%	
					CO1: Students are able learn pollutants and its accumulation and detoxification.	COA1:80%	
2.	11/02/19 to 6/03/19	**Module-2** Microbiology and biochemistry of waste water treatment:	• Inculcate interdisciplinary Approach of learning to understand cellular processes of waste water	▪ Chalk and Talk method ▪ PPT	**PO2: Problem analysis**: Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first	PO2-80%	▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts of management through a project

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			treatment, solid waste management.		principles of mathematics, natural sciences, and engineering sciences. **PO12:Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change		
					PSO1:	PSOA1:84%	
					CO2: Students are able learn waste water treatment process and its application in treatment municipal and industries waste water	COA 2:71%	
3.	27/03/19 to 23/04/19	**Module-3** Biodegradation of xenobiotic compounds & bioremediation	• To comprehend application of basic aspects of biotechnology	▪ Chalk and Talk method ▪ PPT ▪ You tube video on successful entrepreneurs ▪ You tube video on social responsibilities towards society	**PO3: Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.		▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts of management through a project
					PSO1:	PSOA1:84%	

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					CO3: Students are able learn about xenobiotic compounds and their biodegradation and Bioremediation.	COA3: 73%	
4.	13/05/19 to 22/05/19	**Module-4** Biotransformation & biocatalysts	▪ Provide information about basic concepts in bioremediation process	▪ Chalk and Talk method ▪ PPT	**PO12:Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change		▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts of management through a project
					PSO1:	PSOA1:84%	
					CO4: Students are able learn biocatalysts and its application	COA4: 87%	
5.	24/04/19 to 08/05/19	**Module-5** Bioxidation & microbial leaching	▪ Provide information about basic concepts in bioremediation process	▪ Chalk and Talk method ▪ PPT	**PO11: Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and In multidisciplinary environments.		▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts of management through a project
					PSO1:	PSOA1:84%	
					CO5: Students are able learn about Bioxidation and microbial leaching	COA5: 88%	

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SAPTHAGIRI COLLEGE OF ENGINEERING
Department Of Civil Engineering
Curriculum plan and delivery

Sl. No.	Syllabus	Curriculum	Deployment Strategy and Tool	Cross-cutting issues integrated	PO, PSO and CO	Attainments	Attainment Verification
1.	Engineering Geology	1. Students understand the internal structure and composition of the earth. 2. To comprehend the properties, occurrence and uses of minerals in various industries. 3. To learn about geomorpholoical agents such as river, wind, sea waves, and their implications in implementing civil engineering projects. 4. To gain knowledge about the structures of the rocks and their considerations in the selection of site for dams, tunnels, bridges and highways. 5. To learn the application of Topographic maps,	• Chalk and Talk method • PPT	• Business Ethics • Human values • Environmental benefits and effects	**PO1: Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. **PO4: Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. **PO7: Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. **PO9: Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. **PO12: Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.	PO1: 90% PO4: 85% PO7: 80% PO9: 90% PO12: 55%	1.Results of Formative and Summative Assessment 2.Assignment 3. Demonstrating the engineering geology structures, constructions of buildings, dams, etc projects.
					PSO3: To apply the knowledge of environmental studies such as water supply engineering, sanitary and sewage engineering, industrial waste water engineering and to know the impact of environmental issues. **POS4**: To comprehend and apply the ideas of Construction the executives, quality and authority.	PSO3: 90% PSO4: 30%	

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		remote sensing and GIS in Civil engineering practices and natural resource management.			**CO1**: Students will able to apply the knowledge of geology and its role in Civil Engineering **CO2**: Students will effectively utilize earth's materials such as mineral, rocks and water in civil engineering practices. **CO3**: Analyze the natural disasters and their mitigation. **CO4**: Assess various structural features and geological tools in ground water exploration, Natural resource estimation and solving civil engineering problems. **CO5**: Apply and asses use of building materials in construction and asses their properties	COA1:95% COA2:99% COA3: 90% COA4: 85% COA5 : 90%	

Diary

Sl.No.	Date	Topic/Chapter/ Module	Curriculum	Deployment Strategy and Tool	PO, PSO and CO	Attainments	Attainment Verification
1.	08/08/2017 - 23/08/2017	**Module-1** Chapter-1: **Introduction** Chapter-2: **Mineralogy**	Students understand the internal structure and composition of the earth.	▪ Chalk and Talk method ▪ PPT	**PO1: Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. **PO7: Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.	POA1:90% POA7:85%	▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts of Entrepreneurship and management through a project
					PSO3: To apply the knowledge of environmental studies such as water supply engineering, sanitary and sewage engineering, industrial waste water engineering and to know the impact of environmental issues. **POS4**: To comprehend and apply the ideas of Construction the executives, quality and authority.	PSOA3:70% PSOA4:50%	
					CO1: Students will able to apply the knowledge of geology and its role in Civil Engineering **CO2**: Students will effectively utilize earth's materials such as mineral, rocks and water in civil engineering practices.	COA1:95% COA2:99%	

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2.	29/08/2017 - 21/09/2017	**Module-2** Chapter-1: **Petrology**	To comprehend the properties, occurrence and uses of minerals in various industries.	▪ Chalk and Talk method ▪ PPT	**PO1: Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. **PO4: Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. **PO7: Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.	POA1:90% POA4:40% POA7:40%	▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts of Entrepreneurship and management through a project
					PSO3: To apply the knowledge of environmental studies such as water supply engineering, sanitary and sewage engineering, industrial waste water engineering and to know the impact of environmental issues. **POS4**: To comprehend and apply the ideas of Construction the executives, quality and authority.	PSOA3:50% PSOA4:60%	
					CO2: Students will effectively utilize earth's materials such as mineral, rocks and water in civil engineering practices	COA2:99%	
3.	22/09/2017 - 10/10/2017	**Module-3** Chapter-1: **Geomorphology** Chapter-2: **Seismology**	To learn about geomorpholoical agents such as river, wind, sea waves, and their implications in implementing civil engineering projects.	▪ Chalk and Talk method ▪ PPT	**PO1: Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. **PO4: Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. **PO7: Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and	POA1:90% POA4:85% POA7:75%	▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts of Entrepreneurship and management through a project

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					need for sustainable development.		
					PSO3: To apply the knowledge of environmental studies such as water supply engineering, sanitary and sewage engineering, industrial waste water engineering and to know the impact of environmental issues. **POS4**: To comprehend and apply the ideas of Construction the executives, quality and authority.	PSOA3:60% PSOA4:40%	
					CO3: Analyze the natural disasters and their mitigation.	COA3: 90%	
4.	11/10/2017 - 27/10/2017	**Module-4** Chapter-1: **Hydrogeology**	To gain knowledge about the structures of the rocks and their considerations in the selection of site for dams, tunnels, bridges and highways.	▪ Chalk and Talk method ▪ PPT	**PO1: Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. **PO4: Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. **PO7: Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. **PO9: Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. **PO12: Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.	POA1:90% POA4:75% POA7:75% POA9:75% POA12:75%	▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts of Entrepreneurship and management through a project
					PSO3: To apply the knowledge of environmental studies such as water supply engineering, sanitary and sewage engineering, industrial waste water engineering and to know the impact of	PSOA3: 80% PSOA4: 30%	

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					environmental issues. **POS4**: To comprehend and appl, ne ideas of Construction the executives, quality and authority.		
					CO4: Assess various structural features and geological tools in ground water exploration, Natural resource estimation and solving civil engineering problems.	COA4: 85%	
5.	31/10/2017 - 15/11/2017	**Module-5** Chapter-1: **Geodesy**	To learn the application of Topographic maps, remote sensing and GIS in Civil engineering practices and natural resource management.	▪ Chalk and Talk method ▪ PPT	**PO1: Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. **PO4: Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. **PO7: Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. **PO9: Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.	POA1:50% POA4:75% POA7:60% POA9:75%	▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts of Entrepreneurship and management through a project
					PSO3: To apply the knowledge of environmental studies such as water supply engineering, sanitary and sewage engineering, industrial waste water engineering and to know the impact of environmental issues. **POS4**: To comprehend and apply the ideas of Construction the executives, quality and authority.	PSOA3: 40% PSOA4: 60%	
					CO5: Apply and asses use of building materials in construction and asses their properties	COA5: 90%	

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Department Of Civil Engineering
CURRICULUM PLAN AND DELIVERY

Sl. No.	Syllabus	Curriculum	Deployment Strategy and Tool	Cross-cutting issues integrated	PO, PSO and CO	Attainments	Attainment Verification
1.	Municipal And Industrial Waste Water Engineering	▪ Empower students through the concepts of design of sewerage network system and influencing parameters. ▪ Inculcate Evaluate self purification of streams depending on hydraulic and organic loading of sewage into receiving waters ▪ Educate students about how characterize and sampling done for waste water. Apply the principles of municipal waste water treatment process ▪ Create awareness in students about role of design different unit operations involved in conventional and biological treatment process for effluent ▪ Provide information and principles of Industrial effluent treatment process for different industrial wastes.	Chalk and Talk method	Environmental concept	PO7: Understand the impact of the professional engineering solutions in societal and environmental contexts and demonstrate the knowledge of and needfor sustainable development. PO8: Apply ethical principles and commit to professional ethics and responsibilities andnorms of the engineering practice. PO9:Function effectively as an individual and as a member or leaderin diverse teams and in multidisciplinarysettings. PO10: Communicate effectively on complex engineering activities with the Engineering community and with society at large, such as, being able to comprehend and writeeffective reports and design documentation, make effective presentations, and give and receive clear instructions. PO11: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member andleader in a team, to manage projects and in multidisciplinary environments. PO12:Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.	POA1:80%	4. Results of Formative and Summative Assessment 5. Assign ment
					PSO1:	PSOA1:	
					CO1: Students will be able to acquires capability to design of sewerage network system CO2: Students will be able to understand the self purification of streams and organic loading of sewage into receiving waters. CO3: Students will be able to identify and evaluate degree of treatment and type of treatment for disposal, reuse and recycle CO4: Students will be able to identify waste streams and design the industrial waste water treatment plant. agencies CO5: Students will be able to manage sewage and industrial effluent issues.	PCOA1:95% PCOA2:90% PCOA3: 90% PCOA4: 85% PCOA5 : 85%	

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Diary

Sl.No.	Date	Topic/Chapter/Module	Curriculum	Deployment Strategy and Tool	PO, PSO and CO	Attainments	Attainment Verification
1.	31/07/2019-21/08/2019	Module-1 Chapter-1: sanitation Chapter-2: low-cost waste treatment	▪ Empower students through the concepts of Management	▪ Chalk and Talk method	PO10: Communicate effectively on complex engineering activities with the Engineering community and with society at large, such as, being able to comprehend and writeeffective reports and design documentation, make effective presentations, and give and receiveclear instructions. PO12:Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.	POA1:80%	▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts
					PSO1:	PSOA1:	
					CO1: Students will be able to acquires capability to design of sewerage network system	COA1:95%	
2.	22/08/2019-09/09/2019	Module-2 Chapter-1: Design of sewers using hydraulic formula	▪ Empower students through the concepts of Management	▪ Chalk and Talk method	PO9:Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary settings. PO10: Communicate effectively on complex engineering activities with the Engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.		▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts
					PSO1:	PSOA1:85%	
					CO2: Students will be able to understand the self-purification of streams and organic loading of sewage into receiving waters.	COA2:90%	
3.	16/09/2019-10/10/2019	**Module-3** Chapter-1: Waste water characteristics Chapter-2: Treatment units	▪ Empower students through the concepts of Entrepreneurship ▪ Inculcate business ethics and social responsibilities towards different groups during a	▪ Chalk and Talk method	PO8: Apply ethical principles and commit to professional ethics and responsibilities andnorms of the engineering practice. PO9:Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary settings. PO10: Communicate effectively on complex engineering activities with the Engineering community and with society at large,		▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating

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			business ▪ Educate stude. about the need for entrepreneur for the overall development of a country as well as challenges and rewards of entrepreneurship		such as, being able to comprehend and writeeffective reports and design cumentation, make effective presentations, and give and receive clear instructions. PSO1: CO3: Students will be able to identify and evaluate degree of treatment and type of treatment for disposal, reuse and recycle	 PSOA1: COA3: 90%	
4.	12/10/2019-04/10/2019	**Module-4** Methods of municipal waste water treatment	▪ Create awareness in students about role of SSIs in the economic development of the nation and aid provided by the government for SSIs	▪ Chalk and Talk method	PO8: Apply ethical principles and commit to professional ethics and responsibilities andnorms of the engineering practice. PO9:Function effectively as an individual and as a member or leaderin diverse teams and in multidisciplinarysettings. PO10: Communicate effectively on complex engineering activities with the Engineering community and with society at large, such as, being able to comprehend and writeeffective reports and design documentation, make effective presentations, and give and receive clear instructions. PO11: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member andleader in a team, to manage projects and in multidisciplinary environments. PSO1: CO4: Students will be able to identify waste streams and design the industrial waste water treatment plant.agencies	 PSOA1: COA4: 85%	▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts
5.	06/11/2019-23/11/2019	**Module-5** Methods of industrial waste water, treatment methods	▪ Provide information about project, project report, project management and project design	▪ Chalk and Talk method	PO8: Apply ethical principles and commit to professional ethics and responsibilities andnorms of the engineering practice. PO9:Function effectively as an individual and as a member or leaderin diverse teams and in multidisciplinarysettings. PO10: Communicate effectively on complex		▪ Results of Formative and Summative Assessment ▪ Assignment

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					engineering activities with the Engineering community and with iety at large, such as, being able to comprehend and writeeffective reports and design documentation, make effective presentations, and give and receive clear instructions. PO11: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member andleader in a team, to manage projects and in multidisciplinary environments. PO12:Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.		
					PSO1:	PSOA1:	
					CO5:- Students will be able to manage sewage and industrial effluent issues.	COA5: 85%	

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SAPTHAGIRI COLLEGE OF ENGINEERING
Curriculum plan and delivery

Sl. No.	Syllabus	Curriculum	Deployment Strategy and Tool	Cross-cutting issues integrated	PO, PSO and CO	Attainments	Attainment Verification
1.	**Constitution Of India, Professional Ethics & Cyber Law (18CPC39/49)**	• Empower students To gain constitutional knowledge and legal literacy • Understand Engineering and Professional ethics and responsibilities of Engineers • Understand the the cybercrimes and cyber laws for cyber safety measures	Chalk and Talk method Seminar Quiz Questionnaires	• Human values • Professional ethics	**PO01**:Apply the knowledge of science and engineering **PO02**: Problem Analysis **PO03**: Design/development of solutions **PO04:** Conduct investigations of complex problems **PO06**: Engineer and society **PO11:** Project Management and finance **PO12:** Lifelong learning	PO01:91% PO03:92% PO02:93% PO04:91% PO06:90% PO07:90% PO11:88% PO12:90%	Results of Formative and Summative Assessment Assignment Demonstrating concepts Through a project
					PSO1: Expertise in specialized areas of Biotechnology such as application of biology in science and biological Engineering with a focus on research and innovation. **PSO2:** Ability of problem solving by adopting analytical, numerical and experimental skills with awareness of societal impact for Biotechnology	CO01:92% CO02:91% CO03:90% CO04:92% CO05:90%	
					CO1: Have general knowledge and legal literacy about Indian Constitution and there by it helps to take up competitive examinations & to manage/face complex societal issues in society. CO2: Understand state and		

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					central polic[illegible](Union and State Excutive), f[illegible]damental Rights & their duties. CO3: Understand Electoral Process, Amendments and special provisions in Constitution. CO4: Understand powers and functions of Municipalities, Panchayats and Co-operative Societies, with Human Rights and NHRC. CO5: Understand Engineering & Professional ethics and responsibilities of Engineers.		

Dairy

Sl. No.	Date	Topic/Chapter/Module	Curriculum	Deployment Strategy and Tool	PO, PSO and CO	Attainments	Attainment Verification
1.	29/07/19 - 28/08/19	**Module-1** Introduction to Indian Constitution	• Empower students To gain basic knowledge about the situation that leads to draft, enact and adaptation of Constitution of India, basic features of the Indian Constitution and their fundamental Rights	Chalk and Talk method Seminar Quiz Questionnaires	**PO01**:Apply the knowledge of science and engineering **PO02**: Problem Analysis	PSOA1:84%	▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts of management through a project
					PSO1		
					CO1: Have general knowledge and legal literacy about Indian Constitution and there by it helps to take up competitive examinations & to manage/face complex societal issues in society.	CO01:92%	
2.	29/08/19 - 20/09/19	**Module-2** Union Executive and State Executive	• Inculcate about system of governance in India. • Empower students to understand the powers, functions	Chalk and Talk method Seminar Quiz	**PO02**: Problem Analysis **PO03**: Design/development of solutions **PO04:** Conduct investigations of complex problems	CO02:91%	▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts of management through a project
					PSO2		

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			and limitation of three organs of Indian Constitution.	Questionnaires	CO2: Understand state and central policies(Union and State Excutive), fundamental Rights & their duties.		
3.	21/09/19 - 10/10/19	**Module-3** Elections, Amendments and Emergency Provisions	• To understand the election system in India • To gain knowledge about the amendment procedure of Indian Constitution. • To gain knowledge about the Emergency provisions provided under Indian Constitution, what are the effects of Emergency Provisions.	• Chalk and Talk method • Seminar • Quiz • Questionnaires	**PO06**: Engineer and society **PO11:** Project Management and finance		▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts of management through a project
					PSO1,PSO2		
					CO3: Understand Electoral Process, Amendments and special provisions in Constitution	CO03:90%	
4.	11/10/19 - 04/11/19	**Module-4** Professional / Engineering Ethics	• To Understand Engineering and Professional ethics and responsibilities of Engineers.	• Chalk and Talk method • Seminar • Quiz • Questionnaires	**PO06**: Engineer and society **PO11:** Project Management and finance		▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts of management through a project
					CO4: Understand powers and functions of Municipalities, Panchayats and Co-operative Societies, with Human Rights and NHRC.		

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						CO04:92%	
5.	06/11/19 - 29/11/19	**Module-5** Internet Laws, Cyber Crimes and Cyber Laws	• Provide information about Internet Laws, Cyber Crimes and Cyber Laws	• Chalk and Talk method • Seminar • Quiz Questionnaires	**PO11:** Project Management and finance **PO12:**Lifelong learning		▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts of management through a project
					PSO1,PSO2	PSOA1:84%	
					CO5: Understand Engineering & Professional ethics and responsibilities of Engineers	CO05:90%	

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Department Of Biotechnology
Curriculum plan and delivery

Bio Business and Entrepreneurship 15BT61

Sl. No.	Syllabus	Curriculum	Deployment Strategy and Tool	Cross-cutting issues integrated	PO, PSO and CO	Attainments	Attainment Verification
1.	Bio Business and Entrepreneurship 15BT61	▪ Empower students business aspects in biotechnology field ▪ Inculcate the importance of entrepreneurship opportunity in agri biotechnology ▪ Educate students about the entrepreneurship opportunity in industrial biotechnology ▪ Create awareness in students about IPR and Project Management ▪ Educate the students about the ethics and safety in Biotechnology Field	1. Chalk and Talk method 2. Case study Discussion 3. PPT 4. Seminars	• Human values and Professional ethics	**PO01**:Apply the knowledge of science and engineering **PO02**: Problem Analysis **PO03**: Design/development of solutions **PO07**: Environment and sustainability **PO06**: Engineer and society **PO08**: Ethics **PO11:** Project Management and finance **PO12:** Lifelong learning	PO01:92% PO03:96% PO02:94% PO07:91% PO06:95% PO08:90% PO11:89% PO12:90%	1. Results of Formative and Summative Assessment 2. Assignment 3. Discussion of Case studies 4. Seminars
					PSO1: Expertise in specialized areas of Biotechnology such as application of biology in science and biological Engineering with a focus on research and innovation. **PSO2:** Ability of problem solving by adopting analytical, numerical and experimental skills with awareness of societal impact for Biotechnology.	PSO1:91% PSO2:94%	
					CO01: Identify potential entrepreneurship opportunity in biotechnology CO02: Identify potential entrepreneurship opportunity in biotechnology CO03: Identify potential entrepreneurship opportunity in biotechnology CO04: Assess the government strategies and schemes for start-ups and related to IPR CO05: Understand the concepts of bioethics, bio safety and Regulatory norms	CO01:96% CO02:95% CO03:93% CO04:94% CO05:96%	

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DIARY

Sl.No.	Date	Topic/Chapter/ Module	Curriculum	Deployment Strategy and Tool	PO, PSO and CO	Attainments	Attainment Verification
1.	02/02/2019 26/02/2019	**Module-1 BIO ENTERPRENEURSHIP**	Empower students business aspects in biotechnology field	1. Chalk Talk and method 2. Case study Discussion 3. PPT 4. Seminars	**PO01**:Apply the knowledge of science and engineering **PO02**: Problem Analysis **PO03**: Design/development of solutions **PO07**: Environment and sustainability **PO06**: Engineer and society	PO01:92% PO03:96% PO02:94% PO07:91% PO06:95%	▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Discussion of Case studies ▪ Seminars
					PSO1: Expertise in specialized areas of Biotechnology such as application of biology in science and biological Engineering with a focus on research and innovation. **PSO2:** Ability of problem solving by adopting analytical, numerical and experimental skills with awareness of societal impact for Biotechnology.	PSO1:91% PSO2:94%	
					CO01: To Educate the students about Regulatory Rules and Guidelines	CO01:96%	
2.	27/02/2019 - 19/03/2019	**Module-2 ENTREPRENEURSHIP OPPORTUNITY IN AGRI BIOTECHNOLOGY**	Inculcate the importance of entrepreneurship opportunity in agri biotechnology	1. Chalk Talk and method 2. Case study Discussion 3. PPT 4. Seminars	**PO01**:Apply the knowledge of science and engineering **PO02**: Problem Analysis **PO03**: Design/development of solutions **PO07**: Environment and sustainability **PO06**: Engineer and society	PO01:92% PO03:96% PO02:94% PO07:91% PO06:95%	▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Discussion of Case studies ▪ Seminars
					PSO1: Expertise in specialized areas of Biotechnology such as application of biology in science and biological Engineering with a focus on research and innovation.	PSO1:91% PSO2:94%	

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					PSO2: Ability of problem solving by adopting analytical, nu. ical and experimental skills with awareness of societal impact for Biotechnology.		
					CO02: To Understand the safety and quality standards in the biotech industry	CO02:95%	
3.	20/03/2019 - 10/04/2019	**Module-3 ENTREPRENEURSHIP OPPORTUNITY IN INDUSTRIAL BIOTECHNOLOGY**	Educate students about the entrepreneurship opportunity in industrial biotechnology	1. Chalk and Talk method 2. Case study Discussion 3. PPT 4. Seminars	**PO01**:Apply the knowledge of science and engineering **PO02**: Problem Analysis **PO03**: Design/development of solutions **PO07**: Environment and sustainability **PO06**: Engineer and society	PO01:92% PO03:96% PO02:94% PO07:91% PO06:95%	▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Discussion of Case studies ▪ Seminars
					PSO1: Expertise in specialized areas of Biotechnology such as application of biology in science and biological Engineering with a focus on research and innovation. **PSO2:** Ability of problem solving by adopting analytical, numerical and experimental skills with awareness of societal impact for Biotechnology.	PSO1:91% PSO2:94%	
					CO03: To Analyse the Quality and Quality Implementation	CO03: 93%	
4.	11/04/2019 - 03/05/2019	**Module-4** project management intellectual property, technology management and startup schemes	Create awareness in students about IPR and Project Management	1. Chalk and Talk method 2. Case study Discussion 3. PPT 4. Seminars	**PO08**: Ethics **PO11:** Project Management and finance **PO12:** Lifelong learning	PO08:90% PO11:89% PO12:90%	▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Discussion of Case studies ▪ Seminars
					PSO1: Expertise in specialized areas of Biotechnology such as application of biology in science and biological Engineering with a focus on research and innovation. **PSO2:** Ability of problem solving by adopting analytical, numerical and experimental skills with awareness of societal impact for	PSO1:91% PSO2:94%	

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					biotechnology.		
					CO04: To Analyse the Qua...y and Quality Implementation	CO04:94%	
5.	03/05/2019 - 23/05/2019	**Module-5 Regulator y affairs, bioethics & bio-safety:**	Educate the students about the ethics and safety in Biotechnolog y Field	1. Chalk and Talk method 2. Case study Discussion 3. PPT 4. Seminars	**PO08**: Ethics **PO11:** Project Management and finance **PO12:** Lifelong learning	PO08:90% PO11:89% PO12:90%	▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Discussion of Case studies ▪ Seminars
					PSO1: Expertise in specialized areas of Biotechnology such as application of biology in science and biological Engineering with a focus on research and innovation. **PSO2:** Ability of problem solving by adopting analytical, numerical and experimental skills with awareness of societal impact for biotechnology.	PSO1:91% PSO2:94%	
					CO05: To Understand the Quality Management System	CO05:96%	

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SAPTHAGIRI COLLEGE OF ENGINEERING
Department Of Biotechnology Curriculum plan and delivery

Sl. No.	Syllabus	Curriculum	Deployment Strategy and Tool	Cross-cutting issues integrated	PO, PSO and CO	Attainments	Attainment Verification
1.	Genomics and Proteomics (15BT72)	▪ Empower students through the concepts of project databases ▪ Inculcate interdisciplinary approach of learning ▪ To comprehend application of basic aspects of biotechnology ▪ To impart knowledge on application of software tools for biological studies ▪ Create awareness in students about legal issues, social and ethical issues related to genome sequencing ▪ Provide information about various tools applicable for analysis	1. Chalk and Talk method 2. PPT 3. You tube video on social ,legal and ethical issues related genome analysis 4. YouTube video on successful learner	• Human Ethics • Human values • Professional ethics	**PO4: Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. **PO5: Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations. **PO6: The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the	POA1:80%	1. Results of Formative and Summative Assessment 2. Assignment 3. Demonstrating concepts Through a project

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					professional engineering ctice. **PO8:** **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice. **PO12:Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.		
					PSO1 : Demonstrate engineering and life science knowledge for understanding complex biotechnological processes and apply these to manage projects and multidisciplinary tasks	PSOA1:	
					CO1: Students are able to understand genome database & genome project. CO2: To gather	PCOA1:87% PCOA2:89% PCOA3: 87% PCOA4: 86%	

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					knowledge about genomics and genome management. CO3: Able to understand structural genomics and genome analysis. CO4: Able to understand proteomics and proteome analysis		

Diary

Sl. No.	Date	Topic/Chapter/Module	Curriculum	Deployment Strategy and Tool	PO, PSO and CO	Attainments	Attainment Verification
1.	30/07/19-21/08/19	**Module-1** Introduction	▪ Empower students through the concepts of project databases ▪ Create awareness in students about legal issues, social and ethical issues related to genome sequencing	▪ Chalk and Talk method ▪ PPT ▪ You tube video	**PO4: Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. **PO6: The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice. **PO8 Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.	POA1:80%	▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts of management through a project
					PSO1:	PSOA1:	

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					CO1: Students are able to understand genome database & genome project.	COA1:87%	
2.	22/08/19-16/09/19	**Module-2 Genomics**	▪ Inculcate interdisciplinary approach of learning	▪ Chalk and Talk method ▪ PPT	**PO5: Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.		▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts of management through a project
					PSO1:	PSOA1:85%	
					CO2: To gather knowledge about genomics and genome management	COA 2:89%	
3.	18/09/19-12/10/19	**Module-3 Genome management**	▪ To comprehend application of basic aspects of biotechnology	▪ Chalk and Talk method ▪ PPT ▪ You tube video on successful entrepreneurs ▪ You tube video on social responsibilities towards society	**PO12: Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.		▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts of management through a project
					PSO1:	PSOA1:	
					CO3: Able to understand structural genomics and genome analysis	COA3: 87%	

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4.	17/10/19-06/11/19	**Module-4 Genome analysis**	▪ To comprehend application of basic aspects of biotechnology ▪ Provide information about various tools applicable for analysis	Chalk and Talk method ▪ PPT	**PO5: Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations. PSO1: CO3: Able to understand structural genomics and genome analysis	 PSOA1: COA4: 87%	▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts of management through a project
5.	07/11/19-30/11/19	**Module-5 Proteomics**	▪ Provide information about various tools applicable for analysis	▪ Chalk and Talk method ▪ PPT	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations. PSO1: CO4: Able to understand proteomics and proteome analysis	 PSOA1: COA5: 86%	▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts of management through a project

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SAPTHAGIRI COLLEGE OF ENGINEERING
Department Of Biotechnology
Curriculum plan and delivery

Regulatory Affairs in Biotechnology Industry 15BT82

Sl. No.	Syllabus	Curriculum	Deployment Strategy and Tool	Cross-cutting issues integrated	PO, PSO and CO	Attainments	Attainment Verification
1.	**Regulatory Affairs in Biotechnology Industry 15BT82**	▪ Empower students through the concepts related to regulatory affairs ▪ Inculcate the importance of validation ▪ Educate students about the need of standards in Biotechnology Industry ▪ Create awareness in students about the quality and its Implementation ▪ Educate the students about the quality management	1. Chalk and Talk method 2. Case study Discussion 3. PPT	• Analysis of Problems related to quality • Innovative Thinking • Regulatory affairs • Quality Checking • Validation of product or process	**PO01**:Apply the knowledge of science and engineering **PO02**: Problem Analysis **PO03**: Design/development of solutions **PO04:** Conduct investigations of complex problems **PO07**: Environment and sustainability **PO06**: Engineer and society **PO11:** Project Management and finance **PO12:** Lifelong learning	PO01:92% PO03:96% PO02:94% PO04:91% PO06:95% PO07:90% PO11:89% PO12:90%	• Results of Formative and Summative Assessment • Assignment • Discussion of Case studies
					PSO1: Expertise in specialized areas of Biotechnology such as application of biology in science and biological Engineering with a focus on research and innovation. **PSO2:** Ability of problem solving by adopting analytical, numerical and experimental skills with awareness of societal impact for Biotechnology.	PSO1:91% PSO2:94%	
					CO01: To Educate the students about Regulatory Rules and Guidelines **CO02:** To Understand the safety and quality standards in the biotech industry **CO03:** To Analyse the Quality and Quality Implementation **CO04:** To Analyse the Quality and Quality Implementation **CO05:** To Understand the Quality Management System	CO01:93% CO02:92% CO03:90% CO04:94% CO05:92%	

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CURRICULUM DIARY

Sl.No.	Date	Topic/Chapter/Module	Curriculum	Deployment Strategy and Tool	PO, PSO and CO	Attainments	Attainment Verification
1.	11/02/2019 - 25/02/2019	**Module-1 INTRODUCTION**	Empower students through the concepts related to regulatory affairs	• Chalk and Talk method • Case study Discussion • PPT	**PO01**:Apply the knowledge of science and engineering **PO02**: Problem Analysis **PO03**: Design/development of solutions	PO01:92% PO03:96% PO02:94%	• Results of Formative and Summative Assessment • Assignment • Discussion of Case studies
					PSO1: Expertise in specialjzed areas of Biotechnology such as application of biology in science and biological Engineering with a focus on research and innovation. **PSO2:** Ability of problem solving by adopting analytical, numerical and experimental skills with awareness of societal impact for Biotechnology.	PSO1:91% PSO2:94%	
					CO01: To Educate the students about Regulatory Rules and Guidelines	CO01:93%	
2.	26/02/2019 - 25/03/2019	**Module-2 VALIDATION**	Inculcate the importance of validation	• Chalk and Talk method • Case study Discussion • PPT	**PO01**:Apply the knowledge of science and engineering **PO02**: Problem Analysis **PO03**: Design/development of solutions **PO04:** Conduct investigations of complex problems	PO01:92% PO03:96% PO02:94% PO04:91%	• Results of Formative and Summative Assessment • Assignment • Discussion of Case studies
					PSO1: Expertise in specialized areas of Biotechnology such as application of biology in science and biological Engineering with a focus on research and innovation. **PSO2:** Ability of problem solving by adopting analytical, numerical and experimental skills with awareness of societal impact for	PSO1:91% PSO2:94%	

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					Biotechnology.		
					CO02: To Understand the safety and quality standards in the biotech industry	CO02:92%	
3.	26/03/2019 - 10/04/2019	**Module-3 STANDARDS**	Educate students about the need of standards in Biotechnology Industry	• Chalk and Talk method • Case study Discussion • PPT	**PO04:** Conduct investigations of complex problems **PO07:** Environment and sustainability **PO06:** Engineer and society	PO04:91% PO06:95% PO07:90%	• Results of Formative and Summative Assessment • Assignment • Discussion of Case studies
					PSO1: Expertise in specialized areas of Biotechnology such as application of biology in science and biological Engineering with a focus on research and innovation. **PSO2:** Ability of problem solving by adopting analytical, numerical and experimental skills with awareness of societal impact for Biotechnology.	PSO1:91% PSO2:94%	
					CO03: To Analyse the Quality and Quality Implementation	CO03: 90%	
4.	22/04/2019 - 07/05/2019	**Module-4 QUALITY AND IMPLEMENTATION**	Create awareness in students about the quality and its Implementation	• Chalk and Talk method • Case study Discussion • PPT	**PO04:** Conduct investigations of complex problems **PO07:** Environment and sustainability **PO06:** Engineer and society	PO04:91% PO06:95% PO07:90%	• Results of Formative and Summative Assessment • Assignment • Discussion of Case studies
					PSO1: Expertise in specialized areas of Biotechnology such as application of biology in science and biological Engineering with a focus on research and innovation. **PSO2:** Ability of problem solving by adopting analytical, numerical and experimental skills with awareness of societal impact for biotechnology..	PSO1:91% PSO2:94%	

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					biotechnology.		
					CO04: To Analyse the Quality and Quality Implementation	CO04:94%	
5.	03/05/2019 - 23/05/2019	**Module-5 Regulatory affairs, bioethics & bio-safety:**	Educate the students about the ethics and safety in Biotechnology Field	1. Chalk and Talk method 2. Case study Discussion 3. PPT 4. Seminars	**PO08**: Ethics **PO11:** Project Management and finance **PO12:** Lifelong learning	PO08:90% PO11:89% PO12:90%	▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Discussion of Case studies ▪ Seminars
					PSO1: Expertise in specialized areas of Biotechnology such as application of biology in science and biological Engineering with a focus on research and innovation. **PSO2:** Ability of problem solving by adopting analytical, numerical and experimental skills with awareness of societal impact for biotechnology.	PSO1:91% PSO2:94%	
					CO05: To Understand the Quality Management System	CO05:96%	

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Sl. No.	Syllabus	Curriculum	Deployment Strategy and Tool	Cross-cutting issues integrated	PO, PSO and CO	Attainments	Attainment Verification
1.	Genomics and Proteomics (15BT72)	▪ Empower students through the concepts of project databases ▪ Inculcate interdisciplinary approach of learning ▪ To comprehend application of basic aspects of biotechnology ▪ To impart knowledge on application of software tools for biological studies ▪ Create awareness in students about legal issues, social and ethical issues related to genome sequencing ▪ Provide information about various tools applicable for analysis	1. Chalk and Talk method 2. PPT 3. You tube video on social ,legal and ethical issues related genome analysis 4. YouTube video on successful learner	• Human Ethics • Human values • Professional ethics	**PO4: Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. **PO5: Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations. **PO6: The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the	POA1:80%	1. Results of Formative and Summative Assessment 2. Assignment 3. Demonstratjng concepts Through a project

					professional engineering ctice. **PO8:** **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice. **PO12:Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.		
					PSO1 : Demonstrate engineering and life science knowledge for understanding complex biotechnological processes and apply these to manage projects and multidisciplinary tasks	PSOA1:	
					CO1: Students are able to understand genome database & genome project. CO2: To gather	PCOA1:87% PCOA2:89% PCOA3: 87% PCOA4: 86%	

					knowledge about genomics and genome management. CO3: Able to understand structural genomics and genome analysis CO4: Able to understand proteomics and proteome analysis		

Diary

Sl. No.	Date	Topic/Chapter/Module	Curriculum	Deployment Strategy and Tool	PO, PSO and CO	Attainments	Attainment Verification
1.	30/07/19-21/08/19	**Module-1** Introduction	▪ Empower students through the concepts of project databases ▪ Create awareness in students about legal issues, social and ethical issues related to genome sequencing	▪ Chalk and Talk method ▪ PPT ▪ You tube video	**PO4: Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. **PO6: The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice. **PO8 Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.	POA1:80%	▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts of management through a project
					PSO1:	PSOA1:	

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					CO1: Students are able to understand genome database & genome project.	COA1:87%	
2.	22/08/19-16/09/19	**Module-2 Genomics**	▪ Inculcate interdisciplinary approach of learning	▪ Chalk and Talk method ▪ PPT	**PO5: Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.		▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts of management through a project
					PSO1:	PSOA1:85%	
					CO2: To gather knowledge about genomics and genome management	COA 2:89%	
3.	18/09/19-12/10/19	**Module-3 Genome management**	▪ To comprehend application of basic aspects of biotechnology	▪ Chalk and Talk method ▪ PPT ▪ You tube video on successful entrepreneurs ▪ You tube video on social responsibilities towards society	**PO12: Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.		▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts of management through a project
					PSO1:	PSOA1:	
					CO3: Able to understand structural genomics and genome analysis	COA3: 87%	

4.	17/10/19-06/11/19	**Module-4 Genome analysis**	▪ To comprehend application of basic aspects of biotechnology ▪ Provide information about various tools applicable for analysis	Chalk and Talk method ▪ PPT	**PO5: Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.		▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts of management through a project
					PSO1:	PSOA1:	
					CO3: Able to understand structural genomics and genome analysis	COA4: 87%	
5.	07/11/19-30/11/19	**Module-5 Proteomics**	▪ Provide information about various tools applicable for analysis	▪ Chalk and Talk method ▪ PPT	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.		▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts of management through a project
					PSO1:	PSOA1:	
					CO4: Able to understand proteomics and proteome analysis	COA5: 86%	

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Sl. No.	Syllabus	Curriculum	Deployment Strategy and Tool	Cross-cutting issues integrated	PO, PSO and CO	Attainments	Attainment Verification
1.	**Regulatory Affairs in Biotechnology Industry 15BT82**	▪ Empower students through the concepts related to regulatory affairs ▪ Inculcate the importance of validation ▪ Educate students about the need of standards in Biotechnology Industry ▪ Create awareness in students about the quality and its Implementation ▪ Educate the students about the quality management	1. Chalk and Talk method 2. Case study Discussion 3. PPT	• Analysis of Problems related to quality • Innovative Thinking • Regulatory affairs • Quality Checking • Validation of product or process	**PO01**:Apply the knowledge of science and engineering **PO02**: Problem Analysis **PO03**: Design/development of solutions **PO04:** Conduct investigations of complex problems **PO07**: Environment and sustainability **PO06**: Engineer and society **PO11:** Project Management and finance **PO12:** Lifelong learning	PO01:92% PO03:96% PO02:94% PO04:91% PO06:95% PO07:90% PO11:89% PO12:90%	• Results of Formative and Summative Assessment • Assignment • Discussion of Case studies
					PSO1: Expertise in specialized areas of Biotechnology such as application of biology in science and biological Engineering with a focus on research and innovation. **PSO2:** Ability of problem solving by adopting analytical, numerical and experimental skills with awareness of societal impact for Biotechnology.	PSO1:91% PSO2:94%	
					CO01: To Educate the students about Regulatory Rules and Guidelines **CO02:** To Understand the safety and quality standards in the biotech industry **CO03:** To Analyse the Quality and Quality Implementation **CO04:** To Analyse the Quality and Quality Implementation **CO05:** To Understand the Quality Management System	CO01:93% CO02:92% CO03:90% CO04:94% CO05:92%	

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Sl.No.	Date	Topic/Chapter/Module	Curriculum	Deployment Strategy and Tool	PO, PSO and CO	Attainments	Attainment Verification
1.	11/02/2019 - 25/02/2019	**Module-1 INTRODUCTION**	Empower students through the concepts related to regulatory affairs	• Chalk and Talk method • Case study Discussion • PPT	**PO01**:Apply the knowledge of science and engineering **PO02**: Problem Analysis **PO03**: Design/development of solutions	PO01:92% PO03:96% PO02:94%	• Results of Formative and Summative Assessment • Assignment • Discussion of Case studies
					PSO1: Expertise in specialized areas of Biotechnology such as application of biology in science and biological Engineering with a focus on research and innovation. **PSO2:** Ability of problem solving by adopting analytical, numerical and experimental skills with awareness of societal impact for Biotechnology.	PSO1:91% PSO2:94%	
					CO01: To Educate the students about Regulatory Rules and Guidelines	CO01:93%	
2.	26/02/2019 - 25/03/2019	**Module-2 VALIDATION**	Inculcate the importance of validation	• Chalk and Talk method • Case study Discussion • PPT	**PO01**:Apply the knowledge of science and engineering **PO02**: Problem Analysis **PO03**: Design/development of solutions **PO04:** Conduct investigations of complex problems	PO01:92% PO03:96% PO02:94% PO04:91%	• Results of Formative and Summative Assessment • Assignment • Discussion of Case studies
					PSO1: Expertise in specialized areas of Biotechnology such as application of biology in science and biological Engineering with a focus on research and innovation. **PSO2:** Ability of problem solving by adopting analytical, numerical and experimental skills with awareness of societal impact for	PSO1:91% PSO2:94%	

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					Biotechnology.		
					CO02: To Understand the safety and quality standards in the biotech industry	CO02:92%	
3.	26/03/2019 - 10/04/2019	**Module-3 STANDARDS**	Educate students about the need of standards in Biotechnology Industry	• Chalk and Talk method • Case study Discussion • PPT	**PO04:** Conduct investigations of complex problems **PO07:** Environment and sustainability **PO06**: Engineer and society	PO04:91% PO06:95% PO07:90%	• Results of Formative and Summative Assessment • Assignment • Discussion of Case studies
					PSO1: Expertise in specialized areas of Biotechnology such as application of biology in science and biological Engineering with a focus on research and innovation. **PSO2:** Ability of problem solving by adopting analytical, numerical and experimental skills with awareness of societal impact for Biotechnology.	PSO1:91% PSO2:94%	
					CO03: To Analyse the Quality and Quality Implementation	CO03: 90%	
4.	22/04/2019 - 07/05/2019	**Module-4 QUALITY AND IMPLEMENTATION**	Create awareness in students about the quality and its Implementation	• Chalk and Talk method • Case study Discussion • PPT	**PO04:** Conduct investigations of complex problems **PO07:** Environment and sustainability **PO06**: Engineer and society	PO04:91% PO06:95% PO07:90%	• Results of Formative and Summative Assessment • Assignment • Discussion of Case studies
					PSO1: Expertise in specialized areas of Biotechnology such as application of biology in science and biological Engineering with a focus on research and innovation. **PSO2:** Ability of problem solving by adopting analytical, numerical and experimental skills with awareness of societal impact for biotechnology..	PSO1:91% PSO2:94%	

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					CO04: To Analyse the Quality and Quality Implementation	CO04:94%	
5.	08/05/2019 - 22/05/2019	**Module-5 QUALITY MANAGEMENT**	Educate the students about the quality management	• Chalk and Talk method • Case study Discussion • PPT	**PO07**: Environment and sustainability **PO06**: Engineer and society **PO11:** Project Management and finance **PO12:** Lifelong learning	PO06:95% PO07:90% PO11:89% PO12:90%	• Results of Formative and Summative Assessment • Assignment • Discussion of Case studies
					PSO1: Expertise in specialized areas of Biotechnology such as application of biology in science and biological Engineering with a focus on research and innovation. **PSO2:** Ability of problem solving by adopting analytical, numerical and experimental skills with awareness of societal impact for biotechnology.	PSO1:91% PSO2:94%	
					CO05: To Understand the Quality Management System	CO05:92%	

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Sl. No.	Syllabus	Curriculum	Deployment Strategy and Tool	Cross-cutting issues integrated	PO, PSO and CO	Attainments	Attainment Verification
1.	**Forensic Science 15BT752**	▪ Empower students through the basic concepts of Forensic Science ▪ Inculcate the importance of imaging and forensic evidence analysis ▪ Educate students about the need for forensic biology ▪ Create awareness in students about role of forensic expert and the forensic applications in different fields ▪ Educate the students about the professional ethics and code of conduct in professionalism	1. Chalk and Talk method 2. PPT 3. Forensic museum visit 4. Live evidence analysis 5. Discussion with Experts	• Professional Ethics • Human values • Social Accountability • Creativity • Knowledge Base system	**PO01**:apply the knowledge of science and engineering in investigations **PO02**: Problem Analysis **PO08**: development of professional ethics **PO10:**Communication **PO06**: The engineer and the society **PO04**:conduct investigations of the forensic problems	PO01:92% PO02:96% PO08:94% PO10:95% PO06:90% PO04:89%	1. Results of Formative and Summative Assessment 2. Assignment 3. Demonstrating concepts by visiting the Forensic Museum
					PSO1: Expertise in specialized areas of Biotechnology such as application of biology in science and biological Engineering with a focus on research and innovation. **PSO2:** Ability of problem solving by adopting analytical, numerical and experimental skills with awareness of societal impact for Biotechnology.	PSO1:91% PSO2:94%	
					CO01-Understand the different types of forensic branches of science and the concept about inquest. **CO02**-Explain the various applications of techniques and usage of technology to gain knowledge and insight that have legal implications. **CO03**–Comprehend about the characterization of body fluids **CO04** -Analyse the application of computer and other electrical instruments **CO05** -Develop ethics and the code of conduct.	CO01:93% CO02:92% CO03:90% CO04:94% CO05:92%	

CURRICULUM DIARY

Sl.No.	Date	Topic/Chapter/ Module	Curriculum	Deployment Strategy and Tool	PO, PSO and CO	Attainments	Attainment Verification
1.	13/08/2018 - 28/08/2018	**Module-1 INTRODUCTION**	Empower students through the basic concepts of Forensic Science	• Chalk and Talk method • PPT • Forensic museum visit • Live evidence analysis • Discussion with Experts	**PO01**:apply the knowledge of science and engineering in investigations	PO01:92%	▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts by visiting the Forensic Museum
					PSO1: Expertise in specialized areas of Biotechnology such as application of biology in science and biological Engineering with a focus on research and innovation.	PSOA1:91%	
					CO1: Understand the different types of forensic branches of science and the concept about inquest.	COA1:93%	
2.	29/08/2018 - 15/09/2018	**Module-2 FORENSIC ANALYSIS AND IMAGING**	Inculcate the importance of imaging and forensic evidence analysis	• Chalk and Talk method • PPT • Forensic museum visit • Live evidence analysis ▪ Discussion with Experts	**PO02**: Problem Analysis	PO02:96%	▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts by visiting the Forensic Museum
					PSO1: Expertise in specialized areas of Biotechnology such as application of biology in science and biological Engineering with a focus on research and innovation.	PSO01:91%	
					CO02-Explain the various applications of techniques and usage of technology to gain knowledge and insight that have legal implications.	CO02:92%	
3.	17/09/2018 - 05/10/2018	**Module-3 FORENSIC BIOLOGY**	Educate students about the need for forensic biology	• Chalk and Talk method • PPT • Forensic museum visit • Live evidence analysis	**PO04**:conduct investigations of the forensic problems	PO04:89%	▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts by visiting the Forensic Museum
					PSO1: Expertise in specialized areas of Biotechnology such as application of biology in science and biological Engineering with a focus on research and innovation.	PSO01:91%	

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				Discussion with Experts	**CO03**–Comprehend ·ut the characterization of body ·luids	CO03: 90%	
4.	06/10/2018 - 27/10/2018	**Module-4 FORENSIC APPLICATIONS**	Create awareness in students about role of forensic expert and the forensic applications in different fields	• Chalk and Talk method • PPT • Forensic museum visit • Live evidence analysis ▪ Discussion with Experts	**PO10:**Communication **PO06**: The engineer and the society	PO10:95% PO06:90%	▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts by visiting the Forensic Museum
					PSO1: Expertise in specialized areas of Biotechnology such as application of biology in science and biological Engineering with a focus on research and innovation. **PSO2:** Ability of problem solving by adopting analytical, numerical and experimental skills with awareness of societal impact for biotechnology..	PSO1:91% PSO2:94%	
					CO04 -Analyse the application of computer and other electrical instruments	CO04:94%	
5.	28/10/2018 - 26/11/2018	**Module-5 ETHICS IN FORENSICS**	Educate the students about the professional ethics and code of conduct in professionalism	• Chalk and Talk method • PPT • Forensic museum visit • Live evidence analysis • Discussion with Experts	**PO08**: development of professional ethics	PO08:89%	▪ Results of Formative and Summative Assessment ▪ Assignment ▪ Demonstrating concepts by visiting the Forensic Museum
					PSO1: Expertise in specialized areas of Biotechnology such as application of biology in science and biological Engineering with a focus on research and innovation. **PSO2:** Ability of problem solving by adopting analytical, numerical and experimental skills with awareness of societal impact for biotechnology.	PSO1:91% PSO2:94%	
					CO05 -Develop ethics and the code of conduct.	CO05:92%	

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Hesaraghatta Main Road
Bangalore -57

ENVIRONMENTAL STUDIES

[As per Choice Based Credit System (CBCS) scheme]

(Effective from the academic year 2015 -2016)

SEMESTER - I/II

Subject Code	15CIV18/15CIV28	IA Marks	10
Number of Lecture Hours/Week	02	Exam Marks	40
Total Number of Lecture Hours	25	Exam Hours	02

Course Objectives:

1. **To identify the major challenges in environmental issues and evaluate possible solutions.**
2. **Develop analytical skills, critical thinking and demonstrate socio-economic skills for sustainable development.**
3. **To analyze an overall impact of specific issues and develop environmental management plan.**

Module - 1

Introduction: Environment - Components of Environment Ecosystem: Types & Structure of Ecosystem, Balanced ecosystem Human Activities – Food, Shelter, And Economic & Social Security. **2 Hours**

Impacts of Agriculture & Housing Impacts of Industry, Mining & Transportation Environmental Impact Assessment, Sustainable Development. **3 Hours**

Module - 2

Natural Resources, Water resources – Availability & Quality aspects, Water borne diseases & water induced diseases, Fluoride problem in drinking water Mineral resources, Forest Wealth Material Cycles – Carbon Cycle, Nitrogen Cycle & Sulphur Cycle. **2 Hours**

Energy – Different types of energy, Conventional sources & Non Conventional sources of energy Solar energy, Hydro electric energy, Wind Energy, Nuclear energy, Biomass & Biogas Fossil Fuels, Hydrogen as an alternative energy. **3 Hours**

Module -3

Environmental Pollution – Water Pollution, Noise pollution, Land Pollution, Public Health Aspects. **2 Hours**

Global Environmental Issues: Population Growth, Urbanization, Land Management, Water & Waste Water Management. **3 Hours**

Module -4

Air Pollution & Automobile Pollution: Definition, Effects – Global Warming, Acid rain & Ozone layer depletion, controlling measures. **3 Hours**

Solid Waste Management, E - Waste Management & Biomedical Waste Management - Sources, Characteristics & Disposal methods. **2 Hours**

Module - 5

Introduction to GIS & Remote sensing, Applications of GIS & Remote Sensing in Environmental Engineering Practices. **2 Hours**

Environmental Acts & Regulations, Role of government, Legal aspects, Role of Non-governmental Organizations (NGOs) , Environmental Education & Women Education. **3 Hours**

Course Outcome:

Students will be able to,

1. Understand the principles of ecology and environmental issues that apply to air, land, and water issues on a global scale,
2. Develop critical thinking and/or observation skills, and apply them to the analysis of a problem or question related to the environment,
3. Demonstrate ecology knowledge of a complex relationship between biotic and abiotic components
4. Apply their ecological knowledge to illustrate and graph a problem and describe the realities that managers face when dealing with complex issues

Text Books:

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Chikkabanavara

1. Benny Joseph (2005), **"Environmental Studies"**, Tata McGraw – Hill Publishing Company Limited.
2. R.J.Ranjit Daniels and Jagadish Krishnaswamy, (2009), **"Environmental Studies",** Wiley India Private Ltd., New Delhi.
3. R Rajagopalan, **"Environmental Studies – From Crisis to Cure"**, Oxford University Press, 2005,
4. Aloka Debi, **"Environmental Science and Engineering",** Universities Press (India) Pvt. Ltd. 2012.

Reference Books:

1. Raman Sivakumar, **"Principals of Environmental Science and Engineering",** Second Edition, Cengage learning Singapore, 2005
2. P. Meenakshi, **"Elements of Environmental Science and Engineering",** Prentice Hall of India Private Limited, New Delhi, 2006
3. S.M. Prakash, **"Environmental Studies",** Elite Publishers Mangalore, 2007
4. Erach Bharucha, **"Text Book of Environmental Studies"**, for UGC, University press, 2005
5. G.Tyler Miller Jr., **"Environmental Science – working with the Earth"**, Tenth Edition, Thomson Brooks /Cole, 2004
6. G.Tyler Miller Jr., **"Environmental Science – working with the Earth"**, Eleventh Edition, Thomson Brooks /Cole, 2006
7. Dr.Pratiba Sing, Dr.AnoopSingh and Dr.Piyush Malaviya, **"Text Book of Environmental and Ecology"**, Acme Learning Pvt. Ltd. New Delhi.

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ENVIRONMENTAL STUDIES

[As per Choice Based Credit System (CBCS) scheme]

(Effective from the academic year 2017 -2018)

SEMESTER - I/II

Subject Code	17CIV18/17CIV28	IA Marks	20
Number of Lecture Hours/Week	02	Exam Marks	30
Total Number of Lecture Hours	25	Exam Hours	02

Course Objectives:

1. **To identify the major challenges in environmental issues and evaluate possible solutions.**
2. **Develop analytical skills, critical thinking and demonstrate socio-economic skills for sustainable development.**
3. **To analyze an overall impact of specific issues and develop environmental management plan.**

Module - 1

Introduction: Environment - Components of Environment Ecosystem: Types & Structure of Ecosystem, Balanced ecosystem Human Activities – Food, Shelter, And Economic & Social Security. **2 Hours**

Impacts of Agriculture & Housing Impacts of Industry, Mining & Transportation Environmental Impact Assessment, Sustainable Development. **3 Hours**

Module - 2

Natural Resources, Water resources – Availability & Quality aspects, Water borne diseases & water induced diseases, Fluoride problem in drinking water Mineral resources, Forest Wealth Material Cycles – Carbon Cycle, Nitrogen Cycle & Sulphur Cycle. **2 Hours**

Energy – Different types of energy, Conventional sources & Non Conventional sources of energy Solar energy, Hydro electric energy, Wind Energy, Nuclear energy, Biomass & Biogas Fossil Fuels, Hydrogen as an alternative energy. **3 Hours**

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Module -3

Environmental Pollution – Water Pollution, Noise pollution, Land Pollution, Public Health Aspects. **2 Hours**

Global Environmental Issues: Population Growth, Urbanization, Land Management, Water & Waste Water Management. **3 Hours**

Module -4

Air Pollution & Automobile Pollution: Definition, Effects – Global Warming, Acid rain & Ozone layer depletion, controlling measures. **3 Hours**

Solid Waste Management, E - Waste Management & Biomedical Waste Management - Sources, Characteristics & Disposal methods. **2 Hours**

Module - 5

Introduction to GIS & Remote sensing, Applications of GIS & Remote Sensing in Environmental Engineering Practices. **2 Hours**

Environmental Acts & Regulations, Role of government, Legal aspects, Role of Non-governmental Organizations (NGOs) , Environmental Education & Women Education. **3 Hours**

Course Outcome:

Students will be able to,

1. Understand the principles of ecology and environmental issues that apply to air, land, and water issues on a global scale,
2. Develop critical thinking and/or observation skills, and apply them to the analysis of a problem or question related to the environment,
3. Demonstrate ecology knowledge of a complex relationship between biotic and abiotic components
4. Apply their ecological knowledge to illustrate and graph a problem and describe the realities that managers face when dealing with complex issues

Text Books:

1. Benny Joseph (2005), **"Environmental Studies"**, Tata McGraw – Hill Publishing Company Limited.
2. R.J.Ranjit Daniels and Jagadish Krishnaswamy, (2009), **"Environmental Studies",** Wiley India Private Ltd., New Delhi.
3. R Rajagopalan, **"Environmental Studies – From Crisis to Cure"**, Oxford University Press, 2005,
4. Aloka Debi, **"Environmental Science and Engineering",** Universities Press (India) Pvt. Ltd. 2012.

Reference Books:

1. Raman Sivakumar, **"Principals of Environmental Science and Engineering",** Second Edition, Cengage learning Singapore, 2005
2. P. Meenakshi, **"Elements of Environmental Science and Engineering",** Prentice Hall of India Private Limited, New Delhi, 2006
3. S.M. Prakash, **"Environmental Studies",** Elite Publishers Mangalore, 2007
4. Erach Bharucha, **"Text Book of Environmental Studies"**, for UGC, University press, 2005
5. G.Tyler Miller Jr., **"Environmental Science – working with the Earth"**, Tenth Edition, Thomson Brooks /Cole, 2004
6. G.Tyler Miller Jr., **"Environmental Science – working with the Earth"**, Eleventh Edition, Thomson Brooks /Cole, 2006
7. Dr.Pratiba Sing, Dr.AnoopSingh and Dr.Piyush Malaviya, **"Text Book of Environmental and Ecology"**, Acme Learning Pvt. Ltd. New Delhi.

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Course Title: MUNICIPAL AND INDUSTRIAL WASTE WATER ENGINEERING

As per Choice Based Credit System (CBCS) scheme]

SEMESTER:VII

Subject Code	**17CV71**	**IA Marks**	**40**
Number of Lecture Hours/Week	**04**	**Exam Marks**	**60**
Total Number of Lecture Hours	**50**	**Exam Hours**	**03**
CREDITS –04		**Total Marks- 100**	

Course objectives: This course will enable students to;

4. Understand sewerage network and influencing parameters.
5. Understand and design different unit operations involved in conventional and biological treatment process.
6. Apply the principles of Industrial effluent treatment process for different industrial wastes.
7. Evaluate self purification of streams depending on hydraulic and organic loading of sewage into receiving waters.

Module -1

Introduction, need for sanitation, methods of sewage disposal, types of sewerage systems, dry weather flow, wet weather flow, factors effecting dry and wet weather flow on design of sewerage system, estimation of storm flow, time of concentration flow, material of sewers, shape of sewers, laying and testing of sewers, ventilation of sewers. low-cost waste treatment; oxidation pond, septic tank, Sewer appurtenances, manholes, catch basins, basic principles of house drainage, typical layout plan showing house drainage connections,

L1,L2

Module -2

Design of sewers, hydraulic formula for velocity, effects of variation on velocity, regime velocity, design of hydraulic elements for circular sewers for full flow and partial flow conditions, disposal of effluents by dilution, self purification phenomenon, oxygen sag curve, zones of purification, sewage farming, sewage sickness, numerical problems on disposal of effluents, Streeter-Phelps equation

L2,L3

Module -3

Waste water characteristics, sampling, significance and techniques, physical, chemical and biological characteristics, flow diagram for municipal waste water treatment, unit operations; screens, grit chambers, skimming tanks, equalization tanks

Suspended growth and fixed film bio process, design of trickling filters, activated sludge process, sequential batch reactors, moving bed bio reactors, sludge digesters,

L1,L2,L3

Module -4

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Difference between domestic and industrial waste water, effect of effluent discharge on streams, methods of industrial waste water treatment; volume reduction, strength reduction, neutralization, equalisation and proportioning. Removal of organic, inorganic and colloidal solids, combined treatment methods; merits, demerits and feasibility, principles of discharge of raw, partially treated and completely treated wastes in to streams

L1,L2

Module -5

Process flow chart, sources and characteristics of industrial waste water, treatment methods, reuse and recovery and disposal; cotton and textile industry, tanning industry, cane sugar and distilleries, dairy industry, steel and cement industry, paper and pulp industry, pharmaceutical and food processing industry.

L1,L2,L3

Course outcomes: After studying this course, students will be able to:

4. Acquires capability to design sewer and Sewerage treatment plant.
5. Evaluate degree of treatment and type of treatment for disposal, reuse and recycle.
6. Identify waste streams and design the industrial waste water treatment plant.
7. Manage sewage and industrial effluent issues.

Program Objectives:

- Engineering knowledge
- Problem analysis
- Interpretation of data

Text Books:

1. Metcalf and Eddy, "Wastewater Engineering - Collection, Treatment, Disposal and Reuse", McGraw Hill Pub.Co., 2009.
2. Nelson Leonard Nemerow, "Industrial Waste Treatment", Butterworth-Heinemann, 2007.
3. Patwardhan A.D, "Industrial Waste Water Treatment", PHI Learning Private Limited-New Delhi
4. Hammer, M.J. and Hammer, M.J., "Water and Wastewater Technology", 7th Ed., Prentice Hall of India

Reference Books:

1. Manual on Waste Water Treatment: CPHEEO, Ministry of Urban Development, New Delhi.
2. Fair, Geyer and Okun , "Water and Wastewater Engineering" Vol-II, John Willey Publishers, New York.

Course Title: WATER SUPPLY AND TREATMENT ENGINEERING
As per Choice Based Credit System (CBCS) scheme]
SEMESTER:VI

Subject Code	**17CV64**	**IA Marks**	**40**
Number of Lecture Hours/Week	**04**	**Exam Marks**	**60**
Total Number of Lecture Hours	**50**	**Exam Hours**	**03**
CREDITS –04		**Total Marks- 100**	

Course objectives: This course will enable students to

1. Analyze the variation of water demand and to estimate water requirement for a community.
2. Evaluate the sources and conveyance systems for raw and treated water.
3. Study drinking water quality standards and to illustrate qualitative analysis of water.
4. Design physical, chemical and biological treatment methods to ensure safe and potable water Supply.

Module -1

Introduction: Need for protected water supply. Demand of Water: Types of water demands -domestic demand, industrial, institutional and commercial, public use, fire demand, Factors affecting per capita demand, Variations in demand of water, Peak factor, Design period and factors governing design period.
Different methods of population forecasting -with merits and demerits. Numerical Problems.

L1,L2,L3

Module -2

Water Treatment: Objectives, Treatment flow chart – significance of each unit
Sources and Characteristics: surface and subsurface sources -suitability with regard to quality and quantity. Sampling - Objectives, methods, Preservation techniques.
Water quality characteristics: Physical, Chemical and Microbiological.

L1,L2,L3

Module -3

Sedimentation -theory, settling tanks, types, design. Concept of Plate and Tube settlers. Coagulation aided sedimentation-types of coagulants, chemical feeding, flash mixing, Clarriflocculators . Filtration: mechanism -theory of filtration, types of filters, slow sand, rapid sand and pressure filters including construction, operation, cleaning. Operational problems in filters. Design of slow and rapid sand filter without under drainage system.
Ultra and micro filtration: Basic principles, membrane materials, pore size, flux, normalizing permeability, fouling mechanism, Overview of ultra and micro filtration elements and systems, Fouling in MF/UF systems, fouling control and pre treatment.

L1,L2,L3

Module -4

Softening: Overview of Lime soda, Zeolite process, RO and Nano filtration: Basic principles, Flux, Salt passage, rejection and concentration polarization. Overview of RO and nano filtration membranes and elements, Conventional pre treatment techniques for RO and nano filtration.
Disinfection: Methods of disinfection with merits and demerits, Theory of disinfection, emphasis on treatment of water for community bathing. (melas and fairs) Fluoridation and De-fluoridation.

L1,L2,L3

Module -5

Collection and Conveyance of water: Intake structures - types of intakes –Factors to be considered in selection of intake structures.
Pumps: Types of pumps with working principles. Numerical Problems.
Pipes: Design of the economical diameter for the rising main; Numerical Problems.
Pipe appurtenances, Valves, Fire hydrants
Pipe materials: Different materials with advantages and disadvantages. Factors affecting selection of pipe material.
Distribution system: Methods- Gravity, Pumping, Combined gravity and pumping system, Service reservoirs and their capacity determination.

Visit to Intake structure, Water treatment plant and report working of each unit
Design of water treatment plant units and distribution system with population forecasting for the given city

L1,L2,L3

Course Outcomes: After studying this course, students will be able to:

1. Estimate average and peak water demand for a community.
2. Evaluate available sources of water, quantitatively and qualitatively and make appropriate choice for a community.
3. Evaluate water quality and environmental significance of various parameters and plan suitable treatment system.
4. Design a comprehensive water treatment and distribution system to purify and distribute water to the required quality standards.

Program Objectives:

- Engineering knowledge
- Problem analysis
- Interpretation of data

Text Books:

1. S.K.Garg, Environmental Engineering vol-I, Water supply Engineering – M/s Khanna Publishers, New Delhi 2010
2. Mark.J Hammer, Water & Waste Water Technology, John Wiley & Sons Inc., New York, 2008.

Reference Books:

1. B.C. Punmia and Ashok Jain, Environmental Engineering I-Water Supply Engineering, Laxmi Publications (P)Ltd., New Delhi 2010.
2. Howard S. Peavy, Donald R. Rowe, George T , Environmental Engineering - McGraw Hill International Edition. New York, 2000
3. CPHEEO Manual on water supply and treatment engineering, Ministry of Urban Development, Government of India, New Delhi.

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ENVIRONMENTAL BIOTECHNOLOGY

[As per Choice Based Credit System (CBCS) scheme]
SEMESTER –VIII

Sub. Code :	15BT833	I.A Marks :	20
Hours/week :	3	Exam Hrs. :	3
Total Hours :	40	Exam Marks :	80

CREDITS – 03

Course objectives: This objective of this course is to understand the basic concepts of environmental biotechnology.

MODULES	TEACHING HOURS	REVISED BLOOM'S TAXONOMY (RBT) LEVEL
MODULE – 1		
INTRODUCTION TO ENVIRONMENTAL POLLUTANTS Water, Soil and Air: their sources and effects. Removal of Specific Pollutants : Sources of Heavy Metal Pollution, Microbial Systems for Heavy Metal Accumulation, Biosorption & detoxification mechanisms.	**08**	L1, L2, L3
MODULE –2		
MICROBIOLOGY AND BIOCHEMISTRY OF WASTE WATER TREATMENT Biological Treatment of anaerobic and aerobic; methanogenesis, methanogenic, acetogenic, and fermentative bacteria- technical process and conditions; Use of Genetically Engineered Organisms. emerging biotechnological processes in waste - water treatment; Applications include treatment of municipal and industrial wastewaters,	**08**	L2, L3, L4
MODULE – 3		
BIODEGRADATION OF XENOBIOTIC COMPOUNDS & BIOREMEDIATION: Xenobiotic compounds : Aliphatic, Aromatics, Polyaromatic Hydrocarbons, Polycyclic aromatic compounds, Pesticides, Surfactants and microbial treatment of oil pollution. Introduction to Bioremediation, Types of	**08**	L2, L3, L4

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Bioremediation, Bioremediation of surface soil and sludges, Bioremediation of subsurface material, In situ technologies, Ex-situ technologies, Phytoremediation,		
MODULE – 4		
BIOTRANSFORMATIONS & BIOCATALYSTS: Basic organic reaction mechanism - Common prejudices against Enzymes.- Advantages & Disadvantages of Biocatalysts - Isolated Enzymes versus whole cell systems.- Mechanistic Aspects and Enzyme Sources.- Biocatalytic Application - Catalytic Antibodies; Stoichiometry, kinetics, and thermodynamics of microbial processes for the transformation of environmental contaminants.	**08**	L1, L2, L3, L4
MODULE – 5		
BIOOXIDATION & MICROBIAL LEACHING: Biooxidation – Direct and Indirect Mechanisms – Biooxidation Kinetics; Bacterial oxidation of Sphalerite, Chalcopyrite and Pyrite.; Extraction of metals from ores; Recovery of metals from solutions; Microbes in petroleum extraction; Microbial desulfurization of coal, gene closing - use of genetically altered microorganisms for field biodegradation of hazardous materials.	**08**	L1, L2, L3
Course outcomes: After studying this course, students will be able to: • Understand the role of various environmental pollutants, biooxidation, biotransformation • Explain the involvement of microbes in waste water treatment, chemicals		
Graduate Attributes (as per NBA): • Engineer and society • Professional Ethics. • Lifelong learning.		
Question paper pattern: • The question paper will have ten questions. • Each full question consists of 16 marks. • There will be 2full questions (with a maximum of four sub questions) from each module. • Each full question will have sub questions covering all the topics under a module. • The students will have to answer 5 full questions, selecting one full question from each module.		

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TEXT BOOKS

- *Environmèntal Microbiology*, W.D. Grant & P.E. Long, Blakie, Glassgow and London.
- *Microbial Gene Technology*, H. Polasa (ED.) South Asian Publishers, New Delhi.
- *Environmental Biotechnology* by Bruce Rittmann and Perry McCarty
- *Biotransformations* : K. Faber (1995), Springer- Verlag.

REFERENCE BOOKS

- *Biotreatment Systems*, Vol. 22, D. L. Wise (Ed.), CRC Press, INC.
- *Standard Methods for the Examination of Water and Waste Water* (14 th Education), 1985. American Public health Association

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BIOTECHNOLOGY FOR SUSTAINABLE ENVIRONMENT

[As per Choice Based Credit System (CBCS) scheme]
SEMESTER –V

Sub. Code :	15BT563	I.A Marks :	20
Hours/week :	3	Exam Hrs. :	4
Total Hours :	40	Exam Marks :	80

CREDITS – 03

Course objectives:

This course will enable students to learn

- The underlying concepts of Environment and its pollution.
- Treatment of waste water and solid waste.
- The importance of Biofuels against conservative fuels

MODULES	TEACHING HOURS	REVISED BLOOM'S TAXONOMY (RBT) LEVEL
MODULE – 1		
WATER POLLUTION AND TREATMENT OF WASTEWATER: Water as Resource, Drinking water quality, water consumption standards, Types of Water Pollutants and sources, State and central wastewater quality and its various discharge standards. Wastewater Sampling and Characteristics - Physical, Chemical and Biological characteristics of wastewater: Solving numerical on the sampling, characteristics and estimation of wastewater flow rates. Biotechnological approach for water purification	**08**	L1, L2, L3
MODULE –2		
TERTIARY/ADVANCED WASTEWATER TREATMENT: Secondary/Biological treatment process, aerobic/anaerobic attached and suspended growth process, Sludge treatment & Disposal. Ultrafiltration, Filtration, Adsorption on Activated Carbon, Ion Exchange, Reverse Osmosis, Electro dialysis cell. Wastewater treatment in Industries: Paper and Pulp, distillery, Leather, Food processing such dairy and fruit processing and Textile processing.	**08**	L2, L3, L4

MODULE – 3		
AIR POLLUTION AND NOISE POLLUTION Sources, Classification, Properties of air pollutants, and Effects of air pollution on health, vegetation and materials. Air pollution sampling: Ambient sampling and Stack sampling, Analysis of air pollutants, Control methods and Equipment for particulates and gaseous pollutants, Applications to Industries: Thermal power plants, Metallurgical and Cement industries. Sources, Effects of Noise, Equipment for Noise Measurement, and Approaches for Noise Control	**08**	L2, L3, L4
MODULE – 4		
BIOFUELS: Renewable and non-renewable resources. Conventional fuels and their environmental impacts. Animal oils. Modern fuels and their environmental impacts. Biotechnological inputs in producing good quality natural fibres. Plant sources like Jetropha, Pongamia etc. Waste as an energy core, energy recovery systems for urban waste, technology evaluation, concept of gasification of wastes with molten salt to produce low-BTU gas; pipeline gas from solid wastes by syngas recycling process; conversion of feedlot wastes into pipeline gas; fuels and chemicals from crops, production of oil from wood waste, fuels from wood waste, methanol production from organic wastes	**08**	L1, L2, L3, L4
MODULE – 5		
SOLID WASTE MANAGEMENT: Definitions, Characteristics and perspectives, Types of solid wastes, Sources of Solid waste, Properties of solid waste –Numerical problems, Solid waste Management – An Overview:- Material flow in society, Reduction in raw material usage, Solid waste generation, and reuse with materials, energy recovery. Solid waste management through Biotechnological processes involving Hazardous wastes, Biomedical wastes, Dairy wastes, Pulp industry wastes, Textile industry wastes, leather industry wastes and pharmaceutical industry wastes, petroleum wastes treatment	**08**	L1, L2, L3
Course outcomes: After studying this course, students will be able to: • Apply reasoning to identify the components of environmental eco systems and effect of pollutant on environment. • Characterize the various parameters for treatment of water, waste water and solid waste from their sources to provide valid conclusions.		

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- Understand the impact of recovery, recycle of the useful resources from the wastes by adopting advanced techniques to demonstrate the need for sustainable development.
- Identify and demonstrate the knowledge to use suitable equipment for abatement and control of air & noise pollution

Graduate Attributes (as per NBA):

- Design / development of solutions (environmental)
- Engineer and society
- Professional Ethics.
- Lifelong learning.
- Problem analysis

Question paper pattern:

- The question paper will have ten questions.
- Each full question consists of 16 marks.
- There will be 2 full questions (with a maximum of four sub questions) from each module.
- Each full question will have sub questions covering all the topics under a module.
- The students will have to answer 5 full questions, selecting one full question from each module.

TEXT BOOKS

1. Environmental Engineering by Howard S. Peavey, Donald R. Rowe, George Techobanolous, McGraw-Hill International Editions.
2. Wastewater Engineering – Treatment, Disposal and Reuse, METCALF AND EDDY, INC. 3rd Edition Tata McGraw-Hill Publishing Company Limited.
3. Environmental Biotechnology by Foster C.F., John ware D.A., Ellis Horwood Limited.
4. ENVIRONMENTAL BIOTECHNOLOGY by INDU SHEKHAR THAKUR, IK Publishers.
5. Industrial Microbiology by L.E. Casida, Willey Eastern Ltd. Industrial Microbiology by Prescott & Dunn, CBS Publishers.

REFERENCE BOOKS

1. Fuels from Waste by Larry Anderson and David A Tillman, Academic Press.
2. Bioprocess Technology- fundamentals and applications, S O Enfors & L Hagstrom, RIT, Stockholm.
3. Comprehensive Biotechnology by M.Y. Young (Eds.), Pergamon Press.
4. Biotechnology, Economic & Social Aspects by E.J. Dasilva, C Ratledge & A Sasson, Cambridge Univ. Press, Cambridge.
5. Environmental Biotechnology by Pradipta Kumar Mahopatra.

Course Title: SOLID WASTE MANAGEMENT
As per Choice Based Credit System (CBCS) scheme]
SEMESTER:VI

Subject Code	**17CV651**	**IA Marks**	**40**
Number of Lecture Hours/Week	**03**	**Exam Marks**	**60**
Total Number of Lecture Hours	**40**	**Exam Hours**	**03**
CREDITS –03		**Total Marks- 100**	

Course objectives: This course will enable students to

1. Study the present methods of solid waste management system and to analyze their draw backs comparing with statutory rules.
2. Understand different elements of solid waste management from generation of solid waste to disposal.
3. Analyze different processing technologies and to study conversion of municipal solid waste to compost or biogas.
4. Evaluate landfill site and to study the sanitary landfill reactions.

Module -1

Sources: Sources of Solid waste, Types of solid waste, Physical and Chemical composition of municipal solid waste. Generation rate, Numerical Problems.
Collection: Collection of solid waste- services and systems, equipments,
Transportation: Need of transfer operation, transfer station, transport means and methods, route optimization. Solid waste management 2000 rules with, 2016 amendments.

L1,L2,L3

Module -2

Processing techniques: Purpose of processing, Chemical volume reduction (incineration) – Process description, 3T's, principal components in the design of municipal incinerators, Air pollution control,Mechanical volume reduction (compaction), Mechanical size reduction (shredding), component separation (manual and mechanical methods).

L1,L2,L3

Module -3

Composting Aerobic and anaerobic method - process description, process microbiology, design consideration, Mechanical composting, Vermicomposting, Numerical Problems.
Sanitary landfilling: Definition, advantages and disadvantages, site selection, methods, reaction occurring in landfill- Gas and Leachate movement, Control of gas and leachate movement, Design of sanitary landfill. Numerical Problems

L1,L2,L3

Module -4

Sources, collection, treatment and disposal of :-
Biomedical waste ,E-waste ,Hazardous waste and construction waste

L1,L2,L3

Module -5

Incineration -3Ts factor affecting incineration ,types of incinerations , Pyrolsis ,design criteria for incineration
Energy recovery technique from solid waste management

L1,L2,L3

Course outcomes: After studying this course, students will be able to:

1. Analyse existing solid waste management system and to identify their drawbacks.
2. Evaluate different elements of solid waste management system.
3. Suggest suitable scientific methods for solid waste management elements.
4. Design suitable processing system and evaluate disposal sites.

Program Objectives:

- Engineering knowledge
- Problem analysis
- Interpretation of data

Text Books:

1. George Tchobanoglous, Hilary Theisen , Samuel A Vigil, "Integrated Solid Waste

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Management : Engineering principles and management issues", M/c Graw hill Education . Indian edition
2. Howard S Peavy, Donald R Rowe and George Tchobanoglous, "Environmental Engineering", Tata Mcgraw Hill Publishing Co ltd.,

Reference Books:

1. Municipal Solid Wastes (Management and Handling) Rules, 2000.Ministry of Environment and Forests Notification, New Delhi, the 25th September, 2000. Amendment – 1357(E) – 08-04-2016
2. Municipal Solid waste management manual, Part II published under Swachh Bharat Mission, Central Public Health And Environmental Engineering Organization (CPHEEO), 2016, Ministry of Urban Development, Government of India.
3. Handbook of Solidwaste management, second edition, George Tchobanoglous, Frank Kreith, published by M/c Graw hill Education, 2002, ISBN-13 978-0071356237 ISBN -10 0071356231

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Course Title: WATER RESOURCES MANAGEMENT
[As per Choice Based Credit System (CBCS) scheme]
SEMESTER:VI

Subject Code	**17CV661**	**IA Marks**	**40**
Number of Lecture Hours/Week	**03**	**Exam Marks**	**60**
Total Number of Lecture Hours	**40**	**Exam Hours**	**03**
	CREDITS – 03	**Total Marks-100**	

Course objectives: This course will enable students to;
1. Judge surface and ground water resources.
2. Address the issues of water resources management.
3. Learn the principles of integrated water resources management.
4. Understand the legal framework of water policy.
5. Know the different methods of water harvesting.

Module -1

Surface and Ground water Resources: Hydrologic Cycle, Global water resources and Indian Water resources, Surface Water Resources, Water Balance, Available Renewable Water Resources, Water Scarcity, The Water Balance as a Result of Human Interference, Groundwater Resources, Types of Aquifers, Groundwater as a Storage Medium

L2, L3

Module -2

Water Resources Planning and Management: Necessity, System components, planning scales, Approaches, planning and management aspects, Analysis, Models for impact prediction and evaluation, Adaptive Integrated Policies, Post Planning and management Issues.

L2, L3

Module -3

Integrated Water Resources Management: Definition of IWRM, Principles, Implementation of IWRM, Legislative and Organizational Framework, Types and Forms of Private Sector Involvement.

L3, L4

Module -4

Water Governance and Water Policy: Legal Framework of Water – Substance of National Water Laws – Other key issues – Changing incentives through Regulation - National Water Policy – National-Level Commissions – Irrigation Management Transfer Policies and Activities – Legal Registration of WUAs – Legal Changes in Water Allocation, – Role of Local Institutions – Community Based Organizations – Water Policy Reforms: India.

L2, L3

Module -5

Water Harvesting and Conservation: Water Harvesting Techniques – Micro-catchments - Design of Small Water Harvesting Structures – Farm Ponds – Percolation Tanks – Yield from a Catchment, Rain water Harvesting-various techniques related to Rural and Urban area.

L2, L3

Course outcomes: After studying this course, students will be able to:
1. Assess the potential of groundwater and surface water resources.
2. Address the issues related to planning and management of water resources.
3. Know how to implement IWRM in different regions.

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4. Understand the legal issues of water policy.
5. Select the method for water harvesting based on the area.

Program Objectives:

- Engineering knowledge
- Problem analysis
- Interpretation of data

Text Books:

1. K. Subramanya, "Engineering Hydrology", Tata McGraw Hill Publishers, New Delhi.
2. H.M. Raghunath, "Ground Water", Wiley Eastern Publication, New Delhi.
3. Daniel P. Loucks and Eelco van Beek, "Water Resources Systems. Planning and Management", UNESCO Publication.
4. Mollinga, P. et al, "Integrated Water Resources Management", Water in South Asia Volume I, Sage Publications, 2006.
5. Singh, Chhatrapati "Water Rights in India," Ed: Chhatrapati Singh. Water Law in India: The Indian Law Institute, New Delhi,1992.
6. 6) Dhruva Narayana, G. Sastry, V. S. Patnaik, "Watershed Management", CSWCTRI, Dehradun, ICAR Publications, 1997.

Reference Books:

1. Lal, Ruttan. " Integrated Watershed Management in the Global Ecosystem". CRC Press, New York.
2. Heathcote, I. W. Integrated Watershed Management: Principles and Practice. 1988. John Wiley and Sons, Inc., New York.

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(Recognized by All India Council for Technical Education, New Delhi)
(Affiliated to Visvesvaraya Technological University, Belgaum)
Department of Biotechnology

ACADEMIC FILE

F-QAD-02/ R0

Sl. No.	Document
1	Vision & Mission Statements of Dept. & Institution
2	Subject allotment letter
3	Copies of syllabus, List of Text Books, Reference Books, Course Objectives and Course Outcomes
4	Lecture Notes
5	University Question Papers
6	Calendar of Events
7	Personal Time Table & Class Time Table
8	Lesson Plan & Teaching Diary
9	Student List & Batch List (Attendance Register)
10	Assignment/Question Bank
11	Test Question Papers with Scheme & Solution
12	IA Marks T1, T2, T3, Tavg, Assignment & Final IA (Attendance Register)
13	Feedback by students
14	IA Marks sent to VTU
15	VTU Exam Result Analysis
16	CO Attainment

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Sapthagiri College of Engineering
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VISION AND MISSION OF THE INSTITUTE

Vision

The vision of the institution is to create and maintain an enabling learning environment for the students to transform them as thorough professionals to meet diverse professional demands of global environments

Mission

The mission of the institution is to provide quality education to the students to pursue courses in different engineering disciplines and to transform their professional dreams ir to reality and to offer competent budding professionals to the society.

VISION AND MISSION OF THE DEPARTMENT OF CIVIL ENGINEERING

Vision

To create technically competent, research oriented and ethically strong Civil engineers to address the current and future challenges of the society

Mission

- To create Civil engineers of high technical competency and ethical values
- To promote research in Civil engineering and allied fields
- To invoke innovative ideas and problem solving skills to meet the challenges globally

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DEPARTMENT OF CIVIL ENGINEERING

To,
Mr/Ms Krupa. T.L
Assistant/ Associate Professor
Department of Civil Engineering
SCE, Bangalore – 57

This is to inform that, you have been allotted the following theory subject and laboratory for the academic year 2017 - 2018 odd/ even semester

Sl No	Subject title	Subject code	Semester
1.	Engineering Geology Theory	15CV35	III
2.	Basic Surveying practice	15CVL38	III
3.	Environmental Strategies (G, H, I, J, K, L sec)	17CIV18	I

HOD

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ENVIRONMENTAL STUDIES

[As per Choice Based Credit System (CBCS) scheme]

(Effective from the academic year 2017 -2018)

SEMESTER - I/II

Subject Code	17CIV18/17CIV28	IA Marks	10
Number of Lecture Hours/Week	02	Exam Marks	40
Total Number of Lecture Hours	25	Exam Hours	02

Course Objectives:

1. To identify the major challenges in environmental issues and evaluate possible solutions.
2. Develop analytical skills, critical thinking and demonstrate socio-economic skills for sustainable development.
3. To analyze an overall impact of specific issues and develop environmental management plan.

Module - 1

Introduction: Environment - Components of Environment Ecosystem: Types & Structure of Ecosystem, Balanced ecosystem Human Activities – Food, Shelter, And Economic & Social Security. **2 Hours**

Impacts of Agriculture & Housing Impacts of Industry, Mining & Transportation Environmental Impact Assessment, Sustainable Development. **3 Hours**

Module - 2

Natural Resources, Water resources – Availability & Quality aspects, Water borne diseases & water induced diseases, Fluoride problem in drinking water Mineral resources, Forest Wealth Material Cycles – Carbon Cycle, Nitrogen Cycle & Sulphur Cycle. **2 Hours**

Energy – Different types of energy, Conventional sources & Non Conventional sources of energy Solar energy, Hydro electric energy, Wind Energy, Nuclear energy, Biomass & Biogas Fossil Fuels, Hydrogen as an alternative energy. **3 Hours**

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1. Benny Joseph (2005), **"Environmental Studies"**, Tata McGraw – Hill Publishing Company Limited.
2. R.J.Ranjit Daniels and Jagadish Krishnaswamy, (2009), **"Environmental Studies"**, Wiley India Private Ltd., New Delhi.
3. R Rajagopalan, **"Environmental Studies – From Crisis to Cure"**, Oxford University Press, 2005,
4. Aloka Debi, **"Environmental Science and Engineering"**, Universities Press (India) Pvt. Ltd. 2012.

Reference Books:

1. Raman Sivakumar, **"Principals of Environmental Science and Engineering"**, Second Edition, Cengage learning Singapore, 2005
2. P. Meenakshi, **"Elements of Environmental Science and Engineering"**, Prentice Hall of India Private Limited, New Delhi, 2006
3. S.M. Prakash, **"Environmental Studies"**, Elite Publishers Mangalore, 2007
4. Erach Bharucha, **"Text Book of Environmental Studies"**, for UGC, University press, 2005
5. G.Tyler Miller Jr., **"Environmental Science – working with the Earth"**, Tenth Edition, Thomson Brooks /Cole, 2004
6. G.Tyler Miller Jr , **"Environmental Science – working with the Earth"**, Eleventh Edition, Thomson Brooks /Cole, 2006
7. Dr.Pratiba Sing, Dr.AnoopSingh and Dr.Piyush Malaviya, **"Text Book of Environmental and Ecology"**, Acme Learning Pvt. Ltd. New Delhi.

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Module -3

Environmental Pollution – Water Pollution, Noise pollution, Land Pollution, Public Health Aspects. **2 Hours**

Global Environmental Issues: Population Growth, Urbanization, Land Management, Water & Waste Water Management. **3 Hours**

Module -4

Air Pollution & Automobile Pollution: Definition, Effects – Global Warming, Acid rain & Ozone layer depletion, controlling measures. **3 Hours**

Solid Waste Management, E - Waste Management & Biomedical Waste Management - Sources, Characteristics & Disposal methods. **2 Hours**

Module - 5

Introduction to GIS & Remote sensing, Applications of GIS & Remote Sensing in Environmental Engineering Practices. **2 Hours**

Environmental Acts & Regulations, Role of government, Legal aspects, Role of Non-governmental Organizations (NGOs) , Environmental Education & Women Education. **3 Hours**

Course Outcome:

Students will be able to,

1. Understand the principles of ecology and environmental issues that apply to air, land, and water issues on a global scale.
2. Develop critical thinking and/or observation skills, and apply them to the analysis of a problem or question related to the environment.
3. Demonstrate ecology knowledge of a complex relationship between biotic and abiotic components
4. Apply their ecological knowledge to illustrate and graph a problem and describe the realities that managers face when dealing with complex issues

Text Books:

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CBCS SCHEME

17CIV18/28

USN

First/Second Semester B.E Degree Examination, Dec.2018/Jan.2019
Environmental Studies
(COMMON TO ALL BRANCHES)

Time: 2 hrs.] [Max. Marks: 30

INSTRUCTIONS TO THE CANDIDATES

1. Answer all the thirty questions, each question carries one mark.
2. Use only **Black ball point pen** for writing / darkening the circles.
3. **For each question, after selecting your answer, darken the appropriate circle corresponding to the same question number on the OMR sheet.**
4. Darkening two circles for the same question makes the answer invalid.
5. **Damaging/overwriting, using whiteners** on the **OMR** sheets are strictly prohibited.

---

1. In an ecosystem, the flow of energy is
   a) Bidirectional b) Cyclic c) Unidirectional d) Multidirectional

2. Which of the following statements is TRUE
   a) Green plants are self nourishing
   b) Producers depends on consumers
   c) Biotic components includes all non-living components
   d) Herbivores depend on Carnivores

3. In an ecosystem biological cycling of materials is maintained by
   a) Producer b) Consumers c) Decomposer d) All of these

4. Which of the following is not a prominent chemical responsible for a good habitat?
   a) O_2 b) CO_2 c) SO_2 d) Nutrients

5. The most abundant element in the earth crust is
   a) Oxygen b) Silicon c) Sodium d) Iron

6. E.I.A. can be expanded as
   a) Environment and Industrial Act
   b) Environment and Impact Activities
   c) Environment Impact Assessment
   d) Environmentally Important Activity

7. The permissible limit of the important constituent head in domestic potable water as per BIS is
   a) 0.05 mg/L b) 0.005 mg/L c) 5 mg/L d) 1 mg/L

8. Skeletal flurosis is characterized by
   a) Severe and permanent bone joint deformation
   b) Disordered backend
   c) Nervous breakdown
   d) Anemic

9. Which of the following standards about forest in not correct?
   a) Forests reduces soil erosion
   b) Provides recreational opportunities
   c) Provides a source of economic development
   d) None of these

10. At present Karnataka is having forest covered of
    a) 20.19% b) 18.10% c) 28.00% d) 16.4%

11. Conversion of nitrates into gases of nitrogen is called _____.
    a) Nitrification b) Nitrogen fixing c) Reduction d) Denitrification

12. Good example for sedimentary cycle is
    a) Carbon cycle b) Oxygen cycle c) Nitrogen cycle d) Sulphur cycle

13. Water is an excellent solvent because
    a) It has high dielectric constant b) It is volatile
    c) Both a and b d) None of these

14. BCD is
    a) Biochemical Oxygen Demand b) A measure of dissolved solids
    c) Usually greater than COD d) All of these

15. Definition of noise in
    a) Loud sound b) Unwanted sound
    c) Constant sound d) Sound of high frequency

16. Road traffic noise varies depending on
    a) Number and type of operating vehicles b) Traffic density
    c) The hour of the day d) All of these

17. Noise pollution limits at residential area.
    a) 45 dB b) 80 dB c) 55 dB d) 90 dB

18. The noise level human can hear without discomfort is
    a) 140 dB b) 110 dB c) 80 dB d) 190 dB

19. Demography is the study of
    a) Animal's behavior b) Population growth
    c) Rivers d) None of these

20. The average life expectancy around the world is currently
    a) Increasing b) Decreasing
    c) Not changing d) Stabilizing

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21. The main cause for the decline of the population of Europe in the 12th and 13th centuries was
a) Diphtheria b) Cholera
c) Plague d) Meningitis

22. Which of the fo lowing is not the effect of urbanization?
a) Air pollution b) Thermal pollution
c) Solid waste p oduction d) Noise pollution

23. During the last 30 years the percentage decrease in agriculture land due to urbanization is about
a) 40% b) 60% c) 30% d) 0%

24. How much perc entage of population is living in urban?
a) 21.7% b) 30% c) 45% d) 10%

25. Which of the fo lowing are considered as alternative fuels?
a) CNG b) Kerosene c) Coal d) None of these

26. The pH of acid rain is
a) Less then 5.7 b) Less than 3.7 c) Less than 2.7 d) Less than 1.7

27. Ozone layer is present in
a) Troposphere b) Stratosphere c) Mesosphere d) Thermosphere

28. Environmental (Protection) Act was enacted in the year
a) 1986 b) 1992 c) 1984 d) 1974

29. 'Earth Day' is observed on
a) 1st December b) 5th June c) April 22nd d) 1st January

30. Environmental education is targeted to
a) General public b) Professional social groups
c) Technicians and scientists d) All

* * * * *

Academic Calendar of VTU, Belagavi for ODD Semester of 2017-2018 (Aug 2017 – Jan 2018)

	III, V & VII Sem B.E/B.Tech III, V, VII & IX Sem B.Arch	I Sem B.E/B.Tech/ B.Arch	III & V Sem MCA	III Sem MBA	III Sem M.Tech	III Sem M.Arch.
Commencement of ODD Semester	07.08.2017	07.08.2017	07.08.2017	21.08.2017	07.08.2017 [Internship of 16 Weeks]	11.09.2017
Last Working day of ODD Semester	25.11.2017	25.11.2017	25.11.2017	09.12.2017	25.11.2017	13.01.2018
Practical Examination	29.11.2017 To 08.12.2017	29.11.2017 To 08.12.2017	29.11.2017 To 08.12.2017	-	-	-
Theory Examinations	11.12.2017 To 10.01.2018	11.12.2017 To 30.12.2017	11.12.2017 To 30.12.2017	13.12.2017 To 10.01.2018	12.12.2017 To 30.12.2017 (Arrear subjects)	15.01.2018 To 27.01.2018
Summer Project / Professional training	-	-	-	15.01.2018 To 24.03.2018 [Submission report to VTU by 24.04.2018]	-	17.07.2017 To 09.09.2017 [Professional training]
Commencement of EVEN Semester	01.02.2018	01.02.2018	01.02.2018	26.03.2018	08.01.2018	01.02.2018

1. College Time Table shall be arranged for five and a half week days and planned to accommodate EDUSAT transmission slots, the schedule of which will be notified separately.
2. The faculty/staff shall be available to undertake any work assigned by the university.
3. If any of the above date is declared to be a holiday then the corresponding event will come into effect on the next working day.
4. Notification regarding Calendar of Events relating to the conduct of University Examination will be issued by the Registrar (Evaluation) from time to time

29/07/17

REGISTRAR

SAPTHAGIRI COLLEGE OF ENGINEERING, BANGALORE – 57

ACADEMIC CALENDAR – ODD SEM UG – 2017-18 (I, III, V, VII SEM)

Day	August-2017		September-2017		October-2017		November-2017		December-2017	
	Date	Particular	Date	Particular	Date	Particular	Date	Particular	Date	Particular
SUN					01					
MON					02	Gandhi Jayanthi				
TUE	01				03					
WED	02				04		01	Kannada Rajyotsava		
THU	03				05		02			
FRI	04	Varamahalakshmi Vratha	01		06		03		01	VTU (UG) Theory Exams
SAT	05	Monthly Report of July 2017*	02	Bakrid	07	Monthly Report Sept 2017*	04		02	
SUN	06		03		08		05		03	
MON	07	Commencement of even semester	04		09		06	Monthly Report Oct 2017*	04	
TUE	08		05	Monthly Report Aug 2017*	10	2nd Attendance Report	07		05	
WED	09		06		11		08		06	Monthly Report Nov 2016*
THU	10		07	1st Attendance Report	12		09		07	
FRI	11		08		13		10		08	End of VTU (UG) Practical Exams
SAT	12		09		14	2nd IA TEST	11	3rd Attendance Report	09	
SUN	13		10		15		12		10	
MON	14		11		16	2nd IA TEST	13		11	Theory Exams Start
TUE	15	Independence Day	12		17	2nd IA TEST	14		12	
WED	16	Fresher's Day	13		18	Naraka Chthurdashi	15		13	
THU	17		14		19		16	3rd IA TEST	14	
FRI	18		15	1st IA TEST	20	Balipadyami (Deepavali)	17	3rd IA TEST	15	
SAT	19		16	1st IA TEST	21		18	3rd IA TEST	16	
SUN	20		17		22		19		17	
MON	21		18	1st IA TEST	23		20	LAB IAT	18	
TUE	22		19	Mahalaya Amavasye	24		21	LAB IAT	19	
WED	23	1st Proctor Report	20		25		22	LAB IAT	20	
THU	24	Swarna Gowri Vratha	21		26		23	LAB IAT	21	
FRI	25	Sri Vinyaka Chathurthi	22		27	2nd IA Report	24	LAB IAT	22	
SAT	26		23		28	3rd Proctor report*	25	Last Working Day	23	
SUN	27		24		29		26		24	
MON	28		25	1st IA Report	30		27		25	Christmas
TUE	29		26	2nd Proctor report	31		28		26	
WED	30		27				29	VTU (UG) Practical Exams	27	
THU	31		28				30		28	
FRI			29	Ayudha Pooja					29	
SAT			30	Vijayadashami					30	
SUN									31	
						TOTAL NUMBER OF WORKING DAYS : 84		Commencement of EVEN Semester :01/02/2018		

NOTE				
	First Monday	HOD's Meeting (Time 10:30am)	Fourth Saturday	Feedback Report
	Second & Fourth Monday	Disciplinary Committee Meeting (Time 2:30pm)	Every Saturday	Marketing Committee Meeting (Time 11.45am)
	First & Third Monday	CMS-Meeting (Time 2:30pm)		
	Fourth Monday	Hostel Committee Meeting (Time 2:30pm)	Note	

*Report shall be submitted to the principal. ** Eligibility to write IA Tests: Students should have minimum 75% attendance (for 1st IAT), 80% attendance (for 2nd IAT), & 85% attendance (for 3rd IAT).

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Name of the Faculty: KRUPA T L

17CIV18 Environmental Studies (G,H,I,J,K,L).

Time → Day ↓	8:30 – 9:30	9:30 – 10:30	10:30 - 10:40	10:40 - 11:40	11:40 - 12:40	12:40 - 01.30	01:30 - 02:30	02:30 - 03:30	03.30 - 04.30
MON			SHORT BREAK			LUNCH BREAK		G	
							Survey Lab-B2		
TUE	EG 15CV35							K	
							Survey Lab-B3		
WED	EG 15CV35				H				J
							Survey Lab-B1		
THU					EG 15CV35				L
FRI		EG 15CV35							
SAT		I							

Signature of the TTC (Suma)

Signature of HOD

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F-ILP-03/R0

SAPTHAGIRI COLLEGE OF ENGINEERING

ODD SEMESTER TIME-TABLE with effect from 16/08/2017

Chemistry Group

Department/Branch	**CV – Chemistry Group**	Semester : I	Section : L
Academic Year	2017-18	Room No.	**CLH-15**
Class Teacher	Bharath K Devendra		

Proctor's Name: Bharath K Devendra
Mobile No.: 9900334993
e-mail: bharathdevendra@ sapthagiri.edu.in

Proctor's Name: Bhavya N P
Mobile No.: 9845750315
e-mail: bhavyanp@sapthagiri.edu.in

PERIOD	1	2	BREAK	3	4	BREAK	5	6	7
TIME	8:30AM – 9:30	9:30 – 10:30	10:30 - 10:40	10:40 - 11:40	11:40 - 12:40PM	12:40 - 01:30	01:30 - 02:30	02:30 - 03:30	03:30 - 04:30PM
DAY									
MON	17MAT11	17PCD13		17ELN15	17CHE12		17CED14		Sports
TUE	17CHE12	17PCD13		17MAT11	17MAT11		17CHE12	17ELN15	
WED	17CHEL17(L2)/ 17CPL16(L3)/ 17CED14(L1) LAB-2				17MAT11		17CED14		English
THU	17CHEL17(L1)/ 17CPL16(L2)/ 17CED14(L3) LAB-2				17CHE12		17ELN15	17PCD13	17CIV18
FRI	17PCD13	17ELN15		17PCD13	17MAT11		17CHE12	Forum Activities	
SAT	17ELN15	17CHEL17(L3) 17CPL16(L1)/ 17CED14(L2) LAB-1							

Subjects Allocation

Subject Code	Subject Title	Faculty Name	Faculty Code
17MAT11	Engineering Mathematics-II	Bhavya N P	BNP
17CHE12	Engineering Chemistry	Bharath K Devendra	BK
17PCD13	C-programming & data structure	Ashok K Patil	AKP
17CED14	Computer Aided Engineering Drawing	Basavaraju	BV
17ELN15	Basic Electronics	Suma V Shetty	SVS
17CPL16	Computer Programming Lab	Ashok K Patil	AKP
17CHEL17	Engineering Chemistry Lab	Bharath K Devendra	BK
17CIV18	Environmental studies	Krupa T L	KTL
	English		

Time Table Coordinator HOD Principal

Principal
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www.sapthagiri.edu.in E-mail : principal@sapthagiri.edu.in

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K and L Sec

RECORD OF ATTENDANCE & ASSESSMENT

Name of the Faculty : KRUPA.T.L

Department : Civil Engineering

Period : From 7/8/2017 To 25/11/2017

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Semester : Odd / Even

riod : From 07/8/2017 To 25/11/2017

F-TLP-10/R0

ame of the Teacher : Krupa. T.L

esignation : Assistant professor.

epartment : Civil Engineering.

Sl. No.	Sem / Sec / Branch	Subject	Subject Code
1	K-Sec / I Sem / B.T	Environmental studies	17CIV18.
2	I sem / L-Sec / Civil	Environmental studies	17CIV18.
3			
4			

	REVIEWS at the End of the				End of Semester
	1st Month	2nd Month	3rd Month	4th Month	
Signature of Staff	Krupa T.L	Krupa T.L	Krupa T.L	Krupa T.L	Krupa T.L
Signature of HOD	23/9/17	17/10/17	27/10/17	24/11/17	

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LESSON PLAN

Subject : Environmental Studies Subject Code : 17CIV18 Class : I Sem, I Sec

Period	Date	Topics Planned	Date	Topics Covered	Remarks
1	17/8/17	Module - 1. Introduction: Environment - Components of Envi Ecosystem Types & Structure of Ecosystem	17/8/17	Module - 1. Introduction: Environment - Components of Envi Ecosystem Types & structure of Ecosystem.	
2	31/8/17	Balanced ecosystem Human activities - Food, shelter, Economic & social security. Impacts of Agriculture.	31/8/17	Balanced ecosystem, Human activities - Food, Shelter, Economic & Social Security Impacts of Agriculture.	
3	07/9/17	Housing Impacts of Industry, Mining & Transp Envi Impact Assessment, Sustainable Development.	07/9/17	Housing Impacts of Industry, mining & Transp Envi Impact Assessment, Sustainable Development.	
4	14/9/17	Module - 2. Natural Resources, water Resources - Availability & Quality aspects, water borne & induced diseases. Fluoride problem	14/9/17	Module - 2. Natural Resources, water Resources - Availability & Quality aspects, water borne & induced diseases.	
5	21/9/17	Energy - Diff types of energy, conventional source & Non conventional sources of energy, solar, Hydro, wind energy.	21/9/17	Energy - Diff types of energy, conventional source & Non conventional sources of energy, Solar, Hydro, wind energy.	23/9
6	28/9/17	Nuclear, Biomass, Biogas energy, Hydrogen as an alternative energy.	28/9/17	Nuclear, Biomass, Biogas energy, Hydrogen as an alternative energy.	
7	05/10/17	Module - 3. Envi pollution - water, Noise, land pollution, public Health Aspects.	05/10/17	Module - 3. Envi pollution - water, Noise, Land pollution, public Health Aspects.	7/10/17
8	12/10/17	Global Environmental Issues - population Growth, Urbanization, land management, water & waste water manag	12/10/17	Global Environmental Issues - population Growth, Urbanization, land management, Water & waste water manag	
9	19/10/17	Module - 4 Air pollution & Automobile pollution, Def, effects of Global warming, Acid rains & ozone layer depletion.	19/10/17	Module - 4 Air pollution & Automobile pollution, Def. effects of Global warming Acid rain & ozone layer depletion.	

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LESSON PLAN

Date	Topics Planned	Date	Topics Covered	Remarks
26/10/17	Solid waste management, E-Waste and Biomedical Waste management - Sources Charact & Disposal methods.	2/11/2017.	Module-5 Introduction to GIS & RS Applications of GIS & RS in Engg Practices.	
09/11/17	Module-5 Introduction to GIS & RS Applications of GIS & RS in Envi Engg practices	2/11/2017	Solid waste management E-waste & Bio-medical Waste manag - sources Charcact & Disposal.	Extra class.
09/11/17	Envi Acts & Regulations, Role of Govt, Legal aspects, NGOs, Envi Eduction & Women Education.	9/11/17	Envi acts & Regulations, Role of Govt, legal aspects NGOs, Envi Education & Women Eduction.	

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Period	Date	Topics Planned	Date	Topics Covered	Remarks
55					
56					
57					

Reference Text Books / Materials

1. R. Rajagopalan, "Environmental studies - from crisis to cure", Oxford university press, 2005.
2. S.M. prakash, "Environmental studies", Elite publishers mangalore 2007.
3. .....
4. .....
5. .....

Signature of Faculty

HOD

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Sapthagiri College of Engineering
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Bangalore- 560 057

TUTORIAL CLASSES

Date	Topics Discussed	Remarks

Test	Date	Class Strength	No. of Students Appeared	No. of Students Scored < 12	Signature of the HOD
T1	15/9/2017	56	55	13	
T2	17/10/17	55	54	12	
T3	18/11/17	55	55	01	

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SAPTHAGIRI COLLEGE OF ENGINEERING
CIVIL ENGINEERING
CV-L Section

USN	STUDENT NAME	USN	STUDENT NAME
1SG17CV001	AFTAAB AHAMED M DAMANI	1SG17CV031	NAYANA M K
1SG17CV002	AKSHAY C J	1SG17CV032	NIKILA R
1SG17CV003	ANUSHA S	1SG17CV033	NISARGA J V
1SG17CV004	ASHWINI S P	1SG17CV034	NITHIN .H.
1SG17CV005	CHAITHRA .I.	1SG17CV035	POOJA B
1SG17CV006	CHETHAN R JAMANDAR	1SG17CV036	PRAJWAL H C
1SG17CV007	CHIRANTH M	1SG17CV037	PRAJWAL R
1SG17CV008	DARSHAN GOWDA B K	1SG17CV038	PRATHAPA GOWDA H B
1SG17CV009	DARSHAN N S	1SG17CV039	PRATHIKSHA S
1SG17CV011	DEVARAJU M B	1SG17CV040	PURUSHOTHAMA
1SG17CV012	DINAKAR REDDY	1SG17CV041	SADANA .T.
1SG17CV013	GEETHA B N	1SG17CV042	SANTAHOSH MULAWAD
1SG17CV014	HAMMAD MAROOF IMDADI	1SG17CV043	SHASHIDHAR .A.H.
1SG17CV015	HARSHA R	1SG17CV044	SHREEJITH S
1SG17CV016	HARSHA V	1SG17CV045	SUDHA .B.R.
1SG17CV017	HARSHITH .R.	1SG17CV046	SUHAIL AHMAD CHORISAZ
1SG17CV018	HARSHITHA K GOWDA	1SG17CV047	SURAJ .J.
1SG17CV019	HARSHITHA R	1SG17CV048	SUSHMA .N.L.
1SG17CV020	HARSHITHA R P	1SG17CV049	TARUN N
1SG17CV021	HEMALATHA S S	1SG17CV050	TEJAS G V
1SG17CV022	JAYKI KISHAN SAH	1SG17CV051	USHA S P
1SG17CV023	K S DARSHAN	1SG17CV052	VINAY KUMAR
1SG17CV024	KIRAN BANDIWADDAR	1SG17CV053	VYSHAK .R.
1SG17CV025	LIKHITHA G K	1SG17CV054	YASHASWI Y S
1SG17CV026	LINGARAJ	1SG17CV055	YASHIK .A.
1SG17CV027	LINGESHWARA GOWDA .M.	1SG17CV056	ZEESHAN YOUSUF
1SG17CV028	LOHITH .R.		
1SG17CV029	MADHUSUDHAN .B.		
1SG17CV030	MANOJ.D.		

HOD, Dept. of Civil Engg.
S.C.E, Bangalore-560 057

SAPTHAGIRI COLLEGE OF ENGINEERING

I internals

Sub: Environmental studies / 17CIV18
Sem: I

Date: 15/9/2017
Max. Marks: 20

1. The word ecology is proposed by
   a. John Hoeckel b. Helena Curtis c. Charles Southwick d. Ernt Hoeckel

2. The sequence of eating and being eaten in an ecosystem is called
   a. Food Chain b. Carbon Cycle c. Hydrological Cycle d. Anthrop system

3. The World environmental day is being celebrated on every year
   a. june 6th b. May 5th c. June 5th d. Sept 16th

4. Ecological pyramids are studies of
   a. Pyramid of number b. Pyramid of Biomass c. Pyramid of energy d. All of the above

5. Which of it is not an example for an ecosystem?
   a. Forest b. Desert c. Water d. Grassland

6. Concentration of pollutants in each tropic levels is known as
   a. Bio-remediation b. Bio-accumulation c. Bio-magnification d. All

7. Which pyramid is always upright?
   a. Biomass b. Energy c. Numbers d .Food Chain

8. The word ecology is derived from
   a. French word b Spanish word c. Greek word d. English word

9. The organisms who directly feed on producers are called
   a. Herbivores b. Carnivores c. Decomposers d. Saprophytes

10. Which of the following is absorbed by green plants from the atmosphere?
    a. Carbon dioxide b. water c. Nutrient d. All the above

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11. Intensive agriculture led to deposition of excessive quantity of _____into aquatic and terrestrial ecosystem.
a. Nitrogen b. Phosphorus c. Sulphur d. None

12. Effect of modern agriculture on soil is due to
a. Erosion b. Acidification c. Salinization d. All

13. Mining means
a. to conserve and preserve minerals b. to check pollution due to mineral resources
c. to extract minerals and ores d. None

14. Minamata episode of Japan is due to the poisoning of
a. lead b. Nickel c. Mercury d. Cadmium

15. Major goals of EIA is
a. Resource conservation b. Monitoring environment c. Waste minimization d. both (a) and (b)

16. EIA means
a. Eco- industrial act b. Eco- impact assessment
c. Environmental industrial impact d. Environmental impact assessment

17. "Earth day" is held every year on
a. June 5th b. April 22nd c. November 2nd d. January 26th

18. Percentage of nitrogen in earth's atmosphere is
a.98% b. 78% c. 21% d. 12%

19. The word "environment" is derived from
a. French word b. Spanish word c. Greek word d. English word

20. Cauvery water dispute is between
a. India and Pakistan b. Punjab and Haryana
c. Uttar Pradesh and Madhya Pradesh d. Karnataka and Tamil Nadu

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SAPTHAGIRI COLLEGE OF ENGINEERING, BANGALORE-57

DEPARTMENT OF CIVIL ENGINEERING

SCHEME & SOLUTIONS

Semester: I Sem
Subject : Environmental studies
Duration: ½ hr
Staff Name: Kavitha. T.L

Date: 15/9/2017
Subject code: 17CIV18
Marks: 20
Signature: Kavitha. T.L

INTERNAL TEST

Qs No	Solutions	Marks Allocated
1.	(d) Ernst Haeckel.	1m
2.	(a) Food chain	1 m
3.	(c) June 5th	1 m
4.	(d) All of the above	1 m
5.	(d) Grass land.	1 m
6.	(c) Bio-magnification.	1 m
7.	(b) Energy	1 m
8.	(c) Greek word	1 m
9.	(a) Herbivores	1 m
10.	(a) Carbon dioxide.	1 m

Page No

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Qs No.	Solutions	Marks Allocated
11.	(a) Nitrogen	1 m
12.	(d) All	1 m
13.	(b) To extract minerals and ores	1 m
14.	(c) Mercury	1 m
15.	(a) Resource conservation	1 m
16.	(d) Environmental impact assessment.	1 m
17.	(b) April 22nd.	1 m
18.	(b) 78 %	1 m
19.	(a) French word.	1 m
20.	(d) Karnataka and Tamil Nadu.	1 m.

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ATTENDANCE

Class : I Sem Sec. : L Subject with Code : Environmental Studies 17CIV18

Sl. No.	USN	NAME	Test Marks T1	Test Marks T2	Test Marks T3	Final I.A. Marks	University Marks		
1	1SG17CV001	Aftaab Ahamed M Damani	(10)	(07)	13	12	16	28	P
2	1SG17CV002	Akshay. C. J	15	18	17	17	25	42	P
3	1SG17CV003	Anusha. S	13	(06)	16	12	20	32	P
4	1SG17CV004	Ashwini. S.R	14	16	12	14	23	37	P
5	1SG17CV005	Chaithra. E	14	17	15	16	15	31	P
6	1SG17CV006	Chethan. R. Jamandar	(09)	(05)	20	12	12	24	P
7	1SG17CV007	Chiranth. M	12	(08)	15	12	18	30	P
8	1SG17CV008	Darshan Gowda. B.K	12	(09)	15	12	18	30	P
9	1SG17CV008	Darshan. N.S	14	(07)	15	12	16	28	P
10	~~1SG17CV010~~	~~Deepak. K. Mrigank~~	(Ab)						
11	1SG17CV010	Devaraju. M.B	12	(10)	17	13	16	29	P
12	1SG17CV011	Dinakar Reddy	14	14	15	15	19	34	P
13	1SG17CV012	Geetha. B.N	17	17	16	17	25	42	P
14	1SG17CV013	Hammad Maroof Imdadi	(08)	15	12	12	22	34	P
15	1SG17CV014	Harsha. R	16	15	18	17	20	37	P
16	1SG17CV015	Harsha. V	13	16	18	16	24	40	P
17	1SG17CV016	Harshith. R	(10)	12	19	14	24	38	P
18	1SG17CV017	Harshitha. K. Gowda	16	14	17	16	27	43	P
19	1SG17CV018	Harshitha. R	12	14	14	14	27	41	P
20	1SG17CV019	Harshitha. R.P	15	19	14	16	19	35	P
21	1SG17CV020	Hemalatha. S.S	16	18	19	18	21	39	P
22	1SG17CV022	Jayki Kishan Sah	(07)	13	14	12	17	29	P
23	1SG17CV023	K.S. Darshan	13	(11)	13	13	21	34	P
24	1SG17CV024	Kiran Bandiwaddar	(06)	12	17	12	12	24	P
25	1SG17CV025	Likhitha. G.K	15	18	15	16	22	38	P
	No. of Abs.								
	Initials								

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ASSESSMENT

Date : 07/08/17 - 25/11/17

46	47	48	49	50	51	52	53	54	55	56	57	58

Dt. : 12/9		Dt. : 11/10		Dt. : 11/11		Dt. : 25/11	
CH : 03		CH : 07		CH : 12		CH : 12	
CA	%	CA	%	CA	%	CA	%
01	33	04	57	09	75	11	92
02	67	03	71	10	83	11	92
03	100	07	100	12	100	12	100
03	100	07	100	12	100	12	100
03	100	05	71	10	83	11	92
01	33	04	57	09	75	11	92
02	67	07	100	12	100	12	100
02	67	06	86	11	92	11	92
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03	100	07	100	12	100	12	100
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03	100	06	86	11	92	11	92
02	67	06	86	11	92	11	92
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03	100	07	100	12	100	12	100
03	100	07	100	12	100	12	100
03	100	07	100	12	100	12	100
03	100	06	86	10	83	11	92
03	100	07	100	12	100	12	100
03	100	07	100	12	100	12	100
03	100	07	100	12	100	12	100
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ATTENDANCE

Class : I Sem Sec. : L Subject with Code : Environmental Studies 17CIV18

Sl. No.	USN	NAME	Test Marks T1	Test Marks T2	Test Marks T3	Final I.A. Marks	University Marks		
26	1SG17CV027	Lingaraj	(10)	12	12	12	15	27	P
27	1SG17CV026	Lingeshwara Gowda. M	16	(06)	16	13	16	29	P
28	1SG17CV028	Lohith. R	13	15	18	16	22	38	P
29	1SG17CV029	Madhusudhan. B	13	16	16	15	17	32	P
30	1SG17CV030	Manoj. D. P	(09)	18	16	15	23	38	P
31	1SG17CV031	Nayana. M. K	15	18	18	17	19	36	P
32	1SG17CV032	Nikila. R	14	18	15	16	17	33	P
33	1SG17CV033	Nisarga. J. V	16	13	18	16	17	33	P
34	1SG17CV034	Nithin. H	15	12	15	14	25	39	P
35	1SG17CV035	Pooja. B	16	17	17	17	25	39	P
36	1SG17CV036	Prajwal. H. C	(09)	13	15	13	22	35	P
37	1SG17CV037	Prajwal. R	16	14	16	16	22	38	P
38	1SG17CV038	Prathapa Gowda. H. B	13	17	14	15	26	41	P
39	1SG17CV039	Prathiksha. S	14	(Ab)	16	15	28	43	P
40	1SG17CV040	Purushothama	13	(08)	15	12	21	33	P
41	1SG17CV041	Sadana. T	15	15	14	15	24	39	P
42	1SG17CV042	Santahosh Mulawad	12	17	16	15	20	35	P
43	1SG17CV043	Shashidhar. A. H	14	15	13	14	21	35	P
44	1SG17CV044	Sheejith. S	12	11	12	12	20	32	P
45	1SG17CV045	Sudha. B. R	13	17	15	15	09	34	P
46	1SG17CV046	Suhal Ahmad Chorisaz	13	15	15	15	21	36	P
47	1SG17CV021	Suraj. J	13	(08)	15	12	19	31	P
48	1SG17CV047	Sushma. N. L	(10)	18	17	15	20	35	P
49	1SG17CV048	Tarun. N	(09)	16	13	13	19	32	P
50	1SG17CV049	Tejas. G. V	(07)	18	(09)	12	22	34	P
	No. of Abs.								
	Initials								

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ASSESSMENT

Date : 07/8/17-25/11/17

17/8	31/8	7/9	14/9	21/9	28/9	5/10
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51

55	56	57	58	Dt. : 12/9 CH : 03		Dt. : 11/10 CH : 05		Dt. : 11/11 CH : 12		Dt. : 25/11 CH : 12	
				CA	%	CA	%	CA	%	CA	%
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				01	33	05	79	10	83	11	92
				01	33	02	57	9	75	11	92
				03	100	07	100	11	92	11	92
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				03	100	07	100	12	100	12	100
				03	100	07	100	12	100	12	100
				03	100	06	86	11	92	11	92
				02	67	06	86	11	92	11	92
				02	67	06	86	11	92	11	92
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				03	100	07	100	12	100	12	100
				03	100	06	86	10	92	11	92
				03	100	06	86	10	83	11	92
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				03	100	06	86	11	92	11	92
				03	100	06	86	11	92	11	92
				03	100	07	100	11	92	11	92
				02	67	06	86	12	92	11	92
				03	100	07	100	12	100	12	100
				03	100	07	100	12	100	12	100
				01	33	02	29	06	50	11	92
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				P	P	P	P	P	P	P	P

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ATTENDANCE

Class : I Sem Sec. : L Subject with Code : Environmental Studies 17CIV18

Sl. No.	USN	NAME	Test Marks T1	Test Marks T2	Test Marks T3	Final I.A. Marks	University Marks		
51	1SG17CV050	Usha. S. P	16	18	14	16	17	33	P
52	1SG17CV051	Vinay Kumar	12	06	17	12	16	28	P
53	1SG17CV052	Vyshak. R	11	19	15	15	21	36	P
54	1SG17CV053	Yashaswi. Y.S	15	16	16	16	23	39	P
55	1SG17CV054	Yashik. A	12	15	13	14	19	33	P
56	1SG17CV055	Zeeshan Yousuf.	14	18	16	16	20	36	P
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58									
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	No. of Abs.								
	Initials								

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ASSESSMENT

Date : 7/8/17 - 25/11/17

17/8	31/8	7/9	14/9	21/9	28/9	5/10
1	2	3	4	5	6	7
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					Dt. : 12/9		Dt. : 11/10		Dt. : 11/11		Dt. : 25/11	
					CH : 03		CH : 05		CH : 12		CH : 12	
55	56	57	58		CA	%	CA	%	CA	%	CA	%
					03	100	07	100	12	100	12	100
					03	100	07	100	11	92	11	96
					02	67	06	86	11	92	11	96
					03	100	06	86	09	75	11	96
					03	100	07	100	11	92	11	96
					03	100	07	100	11	92	11	96
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SAPTHAGIRI COLLEGE OF ENGINEERING

Bangalore, Karnataka-560057

Consolidated staffAppraisal (CIV - L Sec)

staff appraisal OCT CV 2017 : 03 Oct 2017 To 07 Oct 2017

Date : 2-Nov-2017

Total student(s) : 47

subject : ENVIRONMENTAL STUDIES

course : B.E.

Sem : 1

staff : KRUPA T L

cycle : Chemistry

Sl.No.	Questions	Total Rating Points	Out of Max	Percentage(%)
1	Adequacy Of Learning Material Provided.	392	470	83.40
2	Audibility Of Voice In The Class Room.	383	470	81.49
3	Availability Of The Faculty After The Class Hours For Clearing The Doubts And For The Counseling Of Students.	393	470	83.62
4	Effective Usage Of Black Board.	336	470	71.49
5	Encouragement to Students for rising doubts / questions in the class.	379	470	80.64
6	Impartial To All The Students.	418	470	88.94
7	Maintaining Discipline & Control Over the Students.	393	470	83.62
8	Planning Of Lessons, Helping in Understanding the concepts with illustrative examples & effective explanation.	375	470	79.79
9	Regularity & Punctuality In Engaging the Classes.	409	470	87.02
10	Syllabus Coverage & depth of coverage.	392	470	83.40
	Total :	3870	4700	82.34

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SAPTHAGIRI COLLEGE OF ENGINEERING, BANGALORE

Odd Sem 2017-18

BRANCH: CV **SEMESTER:** 1

Sl NO.	USN	17ELN15	17PCD13	17CPL16	17CHE12	17MAT11	17CHEL17	[redacted]	17CED14	STUDENT SIGNATURE
1	1SG17CV001	25	23	30	23	20	38	12	33	
2	1SG17CV002	27	35	39	31	21	39	17	30	
3	1SG17CV003	19	24	28	25	19	35	12	26	
4	1SG17CV004	32	33	35	36	33	40	14	39	
5	1SG17CV005	21	34	35	28	20	38	16	31	
6	1SG17CV006	19	20	21	22	13	32	12	27	
7	1SG17CV007	24	28	30	23	21	34	12	33	
8	1SG17CV008	21	20	30	22	20	36	12	31	
9	1SG17CV009	26	30	38	24	25	37	12	33	
10	1SG17CV010	25	28	29	22	22	38	13	33	
11	1SG17CV011	22	25	28	23	19	36	15	36	
12	1SG17CV012	35	34	39	34	32	39	17	37	
13	1SG17CV013	26	31	36	33	29	38	12	40	
14	1SG17CV014	30	38	32	29	29	37	17	38	
15	1SG17CV015	32	35	39	34	26	40	16	40	
16	1SG17CV016	27	31	32	23	21	38	14	38	
17	1SG17CV017	34	38	32	36	37	39	16	39	
18	1SG17CV018	29	34	32	34	25	40	14	38	
19	1SG17CV019	32	29	36	31	20	38	16	31	
20	1SG17CV020	39	39	40	39	39	39	18	40	
21	1SG17CV021	26	36	32	29	20	39	12	25	
22	1SG17CV022	21	27	25	19	21	32	12	28	
23	1SG17CV023	20	25	30	31	20	38	13	36	
24	1SG17CV024	23	28	32	19	23	38	12	31	
25	1SG17CV025	28	35	40	36	26	40	16	38	
26	1SG17CV026	19	20	30	23	20	33	13	22	
27	1SG17CV027	21	23	25	26	19	38	12	32	
28	1SG17CV028	19	22	30	20	21	37	16	26	
29	1SG17CV029	19	24	25	23	19	36	15	26	
30	1SG17CV030	19	21	30	19	19	36	15	27	
31	1SG17CV031	25	33	38	25	30	40	17	38	
32	1SG17CV032	32	37	30	34	34	39	16	31	
33	1SG17CV033	28	28	39	34	23	39	16	33	
34	1SG17CV034	25	30	36	33	27	39	14	34	
35	1SG17CV035	30	39	37	33	19	40	17	30	
36	1SG17CV036	20	27	25	25	22	37	13	31	
37	1SG17CV037	21	36	32	23	20	32	16	27	
38	1SG17CV038	26	27	35	30	21	39	15	36	

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Sl NO.	USN	17ELN15	17[illegible]CD13	17CPL16	17CHE12	17MAT11	17CHEL17	[redacted]	17CED14	STUDENT SIGNATURE
39	1SG17CV039	31	36	36	36	37	40	15	38	
40	1SG17CV040	25	31	32	32	34	39	12	38	
41	1SG17CV041	32	33	40	27	29	38	15	40	
42	1SG17CV042	30	27	35	30	29	37	15	37	
43	1SG17CV043	23	24	31	24	19	38	14	38	
44	1SG17CV044	19	24	30	24	12	35	12	22	
45	1SG17CV045	24	37	36	24	26	39	15	33	
46	1SG17CV046	20	30	28	27	13	30	15	27	
47	1SG17CV047	19	29	31	22	22	35	15	30	
48	1SG17CV048	21	32	29	26	24	39	13	37	
49	1SG17CV049	19	20	32	24	23	37	12	35	
50	1SG17CV050	21	22	32	29	23	35	16	32	
51	1SG17CV051	19	24	27	24	22	37	12	27	
52	1SG17CV052	25	31	35	28	19	39	15	36	
53	1SG17CV053	30	37	37	34	25	39	16	38	
54	1SG17CV054	21	23	29	25	21	38	14	34	
55	1SG17CV055	29	28	27	25	19	38	16	31	
--x--	Faculty Signature									----xxxxxxx----

*NA values are either optional subjects or the faculty has not yet entered the marks

HOD
Seal and Signature

PRINCIPAL
Seal and Signature

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Sapthagiri College of Engineering

Department of CIVIL ENGINEERING

SUBJECT : ENVIRONMENTAL STUDIES SUB CODE: 17CIV18

SEM : IV SEC : L YEAR : 2017-18 EVEN SEM

Sl. No.	Name of the student	USN	INTERNALS					EXTERNAL EXAM
			Q1 or 2 CO1	Q3 or 4 CO2	Q1 or 2 CO3	Q3 or 4 CO4	Q1 or 2 CO5	CO1,CO2,CO3,CO4,CO5,
			10	10	10	10	20	50
1	AFTAAB AHAMED M DAMANI	1SG17CV001	5	5	5	5	18	28
2	AKSHAY C J	1SG17CV002	8	7	7	8	17	42
3	ANUSHA S	1SG17CV003	7	6	6	7	16	32
4	ASHWINI S R	1SG17CV004	7	7	7	7	12	37
5	CHAITHRA E	1SG17CV005	7	7	7	7	15	31
6	CHETHAN R JAMANDAR	1SG17CV006	4	5	5	4	20	24
7	CHIRANTH M	1SG17CV007	6	6	6	6	15	30
8	DARSHAN N S	1SG17CV008	6	6	6	6	15	30
9	DARSHAN GOWDA B K	1SG17CV009	7	7	7	7	15	28
10	DEVARAJU M B	1SG17CV010	6	6	6	6	17	29
11	DINAKAR REDDY	1SG17CV011	7	7	7	7	15	34
12	GEETHA B N	1SG17CV012	8	8	8	8	16	42
13	HAMMAD MAROOF IMDADI	1SG17CV013	4	4	4	4	12	34
14	HARSHA R	1SG17CV014	8	8	8	8	18	37
15	HARSHA V	1SG17CV015	6	6	6	6	18	40
16	HARSHITH .R.	1SG17CV016	5	5	5	5	19	38
17	HARSHITHA K GOWDA	1SG17CV017	8	8	8	8	17	43
18	HARSHITHA R	1SG17CV018	6	6	6	6	14	41
19	HARSHITHA R P	1SG17CV019	7	7	7	7	14	35
20	HEMALATHA S S	1SG17CV020	8	8	8	8	19	39
21	J SURAJ	1SG17CV021	3	3	3	3	14	29
22	JAYKI KISHAN SAH	1SG17CV022	6	6	6	6	13	34
23	K S DARSHAN	1SG17CV023	3	3	3	3	17	24
24	KIRAN BANDIWADDAR	1SG17CV024	7	7	7	7	15	38
25	LIKHITHA G K	1SG17CV025	5	5	5	5	12	27
26	LINGARAJ	1SG17CV026	8	8	8	8	16	29
27	LINGESWARA GOWDA M	1SG17CV027	6	6	6	6	18	38

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28	LOHITH R	1SG17CV028	6	6	6	6	16	32
29	MADHUSUDHAN B	1SG17CV029	4	4	4	4	16	38
30	MANOJ D P	1SG17CV030	7	7	7	7	18	36
31	NAYANA M K	1SG17CV031	7	7	7	7	15	36
32	NIKILA R	1SG17CV032	8	8	8	8	18	33
33	NISARGA J V	1SG17CV033	7	7	7	7	15	39
34	NITHIN .H.	1SG17CV034	8	8	8	8	17	39
35	POOJA B	1SG17CV035	4	4	4	4	15	35
36	PRAJWAL H C	1SG17CV036	8	8	8	8	16	38
37	PRAJWAL R	1SG17CV037	6	6	6	6	14	41
38	PRATHAPA GOWDA H B	1SG17CV038	7	7	7	7	16	43
39	PRATHIKSHA S	1SG17CV039	6	6	6	6	15	33
40	PURUSHOTHAMA	1SG17CV040	7	7	7	7	14	39
41	SAHANA T	1SG17CV041	6	6	6	6	16	35
42	SANTAHOSH MULAWAD	1SG17CV042	7	7	7	7	13	35
43	SHASHIDHAR .A.H.	1SG17CV043	6	6	6	6	12	32
44	SHREEJITH S	1SG17CV044	6	6	6	6	15	34
45	SUDHA .B.R.	1SG17CV045	6	6	6	6	15	36
46	SUHAIL AHMAD CHORISAZ	1SG17CV046	6	6	6	6	15	31
47	SUSHMA .N.L.	1SG17CV047	5	5	5	5	17	35
48	TARUN N	1SG17CV048	4	4	4	4	13	32
49	TEJAS G V	1SG17CV049	3	3	3	3	9	34
50	USHA S P	1SG17CV050	8	8	8	8	14	33
51	VINAY KUMAR	1SG17CV051	6	6	6	6	17	28
52	VYSHAK .R.	1SG17CV052	5	6	6	5	15	36
53	YASHASWI Y S	1SG17CV053	7	7	7	7	16	39
54	YASHIK .A.	1SG17CV054	6	6	6	6	13	33
55	ZEESHAN YOUSUF	1SG17CV055	7	7	7	7	16	36

	CO1	CO2	CO3	CO4	CO5	CO1,CO2,CO3,CO4,CO5,
	1	1	1	1	1	#REF!
CO's TOTAL	10	10	10	10	20	#REF!

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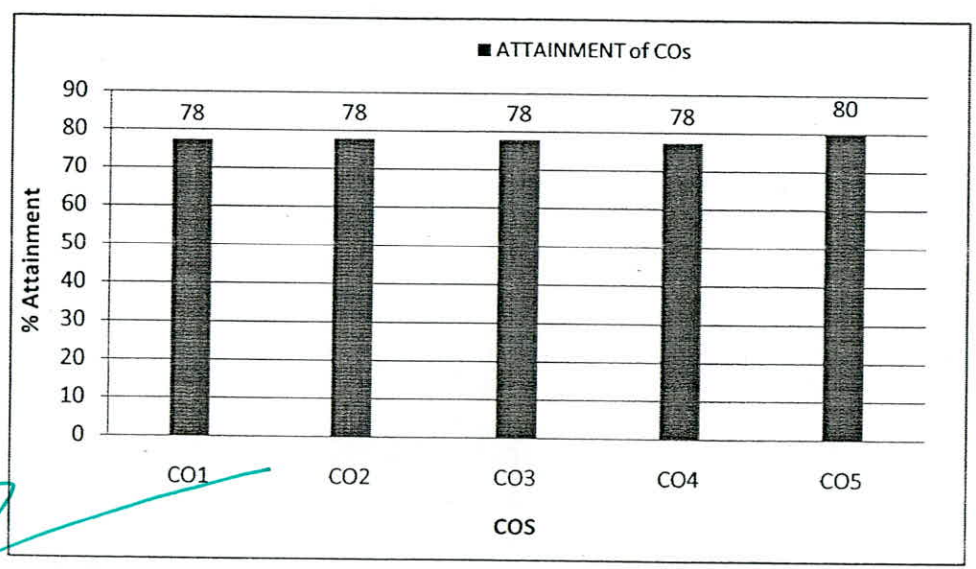
Equal weigtage to TEST, ASSIGNMENT & EXAM MARKS

TARGET: 70% ATTAINMENT

	CO1	CO2	CO3	CO4	CO5
IA MARKS ATTAINMENT	55	56	56	55	60
EXAM ATTAINMENT	100	100	100	100	100
AVARAGE	78	78	78	78	80

ATTAINMENT of COs	CO1	CO2	CO3	CO4	CO5
	78	78	78	78	80



SAMPLE

NEXT ACADEMIC YEAR TARGET CAN BE 80%

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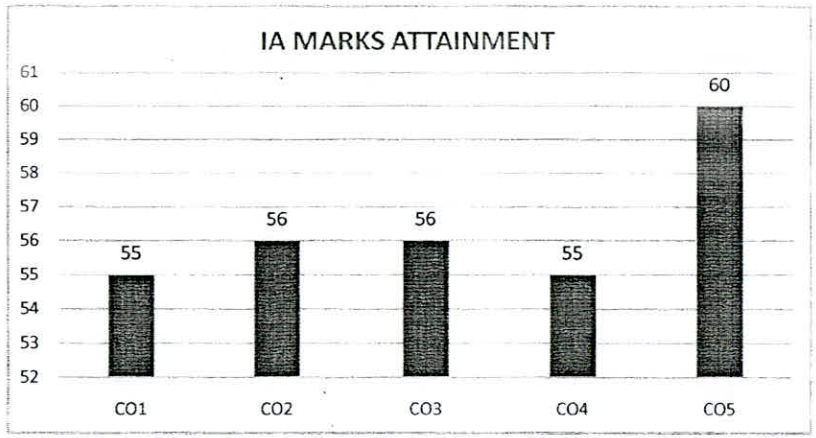

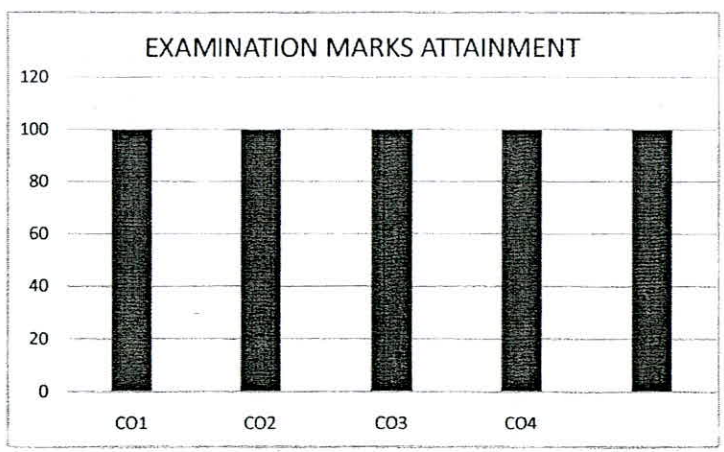

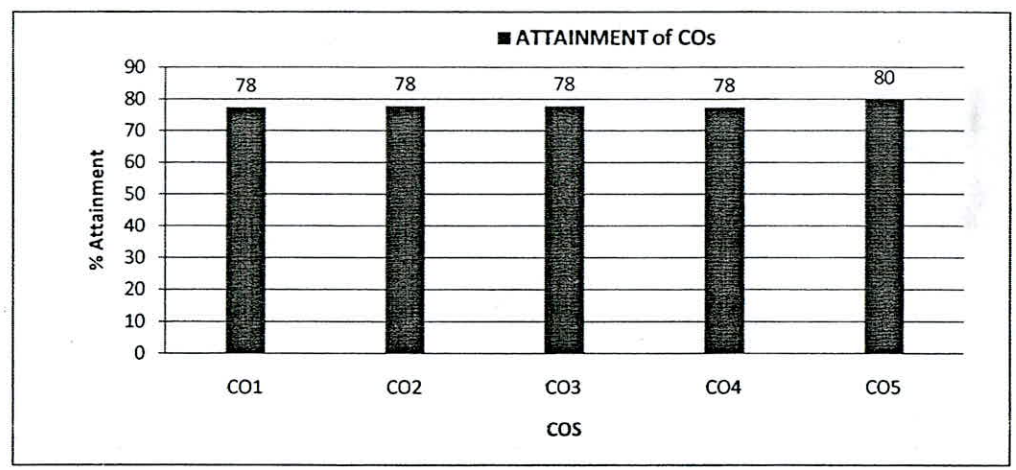

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SAPTHAGIRI COLLEGE OF ENGINEERING, BENGALURU - 57.		
DEPARTMENT OF CIVIL ENGINEERING		
INDIRECT CO ASSESSMENT METHOD AND FINAL CO ATTAINMENT (ODD SEM. 2017-18)		
SEM & SEC: 1ST & L	Subject: Environemtal studies	Subject Code: **17CIV18**
NAME OF THE FACULTY :KRUPA T L		

I CO Attainment

A: Direct assessment (80%)-Tests, Assignment, Examination

B: Indirect assessment (20%)-Course end survey

Sample

COs	Mapping POs	Direct Assessment (a)	Indirect Assessment (b)	Overall Attainment 0.8 (a) + 0.2(b)	Target (%)	Attainment
CO1	1,2,6,7,8,9	74	0	59	60	NO
CO2	1,2,6,7,8,9	74	0	59	60	NO
CO3	1,2,6,7,8,9	74	0	59	60	NO
CO4	1,2,6,7,8,9	74	0	59	60	NO
CO5	1,2,6,7,8,9	74	0	59	60	NO

NOTE: NOT TAKEN FEEDBACK

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Mapping of Course outcomes (COs) and Program Outcomes (POs)
Note: 1 = Slight 2 = Moderate 3 = Good

Course outcomes	Program Outcomes												PSO'S			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CO-1	2					3	3	3				3			3	
CO-2	1					3	3	3				3			3	
CO-3	2					3	3	3				3			3	
CO-4	2					3	3	3				3			3	
CO-5	2					3	3	3				3			3	
Total	1.8	0	0	0	0	3	3	3	0	0	0	3	0	0	3	

Mapping of Course outcomes (COs) and Program Outcomes (POs)
Note: 1 = Slight 2 = Moderate 3 = Good

Course outcomes	CO % DIRECT	Program Outcomes												PSO'S			
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CO-1	93	56	0	0	0	0	93	93	93	0	0	0	93	0	0	93	0
CO-2	93	56	0	0	0	0	93	93	93	0	0	0	93	0	0	93	0
CO-3	93	56	0	0	0	0	93	93	93	0	0	0	93	0	0	93	0
CO-4	93	56	0	0	0	0	93	93	93	0	0	0	93	0	0	93	0
CO-5	92	55	0	0	0	0	92	92	92	0	0	0	92	0	0	92	0
Total		56	0	0	0	0	93	93	93	0	0	0	93	0	0	93	0

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HASIRU-ECO CLUB REPORT

Name of the Event organised	**BEST OUT OF WASTE**
Date and Day	**10-09-2018** MONDAY
Collaboration or Association	COMMUNITY CLUB
Issues addressed	Waste can be eliminated in a better manner by making them into novel and usable products.
Place of the event conducted	BIOTECHNOLOGY LAB

Report: *HASIRU-Eco club* organized an event **"Best Out of Waste"** in the College at BT Lab. The Program was organised and co-ordinated by Prof. Prashanth Kumar HP (Ecoclub) in association with Prof. Tulsidas (Community Club) along with students from both the clubs. The students from different departments of SCE participated in the competition on **'Best out of Waste'.** Initially the student coordinators of Eco Club *'Hasiru'* told the student participants enrolled in the event to collect the different waste items in the college like used paper, cardboard, plastic bottles, juice cartons, cans, threads, wires, wooden sticks, metal scrap, disposable plates and cups, CD and DVDs, batteries, electric bulbs, pens, envelopes, hangers, keys, rubber bands, tinfoil etc. The waste collected was dumped at a specified place and segregated for the competition. The student participants were made to assemble at the event conduction place and were provided with the necessary raw materials *i.e.* waste collected along with few stationeries needed to make the usable products. All the necessary provisions and arrangements were made for the student to participate without any difficulty. The students participated with interest and made different usable things like photo frames, hourglass, table lamps, lanterns, flower vase, pen stands, toys, carry bags, fountain, pin box, mini vacuum cleaner, air pump, dispenser, juicer etc. The nature of things given to the students were considered waste but the students made usable things in the competition by assembling and gluing bits and pieces of waste items to form entirely a new product from their own creative ideas. They have shown their creative and cognition skills and

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made items of interest. The products made by the students were exhibited and suggestions were given by the staff and other fraternity. The products made can be used for variety of applications and depicts how the waste can be reused in a better manner not only in the college but also community as a whole, instead of simply disposing the waste, how better products made, helps in reducing the cost, materials and keeps the surroundings clean. Best out of things made from waste was appreciated by the Management of SCE, Principal, faculties and others. The students were educated and told how waste can be reduced, reused, recycled and recovered in a better manner in order to keep the environment around us eco-friendly and safe.	
Impact & Sensitization	Students learnt how to make usable products from waste by using their creative and cognitive skills. They also learn how to keep the environment and surroundings clean by proper disposal of waste.

Photos

BEST OUT OF WASTE COMPETITION

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HASIRU- ECO CLUB REPORT

Name of the Event organised	World Food Day at College Premises
Date and Day	16/10/2018
Collaboration or Association	COMMUNITY CLUB
Issues addressed	Awareness of Food, wastage of food and farmer problems
Place of the event conducted	Sapthagiri College of Engineering, Bengaluru

Report: A team of faculty and student volunteers organized an event "World Food Day" at Sapthagiri College of Engineering, Bengaluru. The Program was organized and co-ordinated by Prof. Prashanth (ECO Club) along with students from both Community and Eco club. World Food Day is an international day celebrated every year around the world on 16 October in honor of the date of the founding of the Food and Agriculture Organization of the United Nations in 1945. The day is celebrated widely by many other organizations concerned with food security, including the World Food Programme and the International Fund for Agricultural Development. World Food Day each year on 16 October to commemorate the founding of the Organization in 1945. These events promote worldwide awareness and action for those who suffer from hunger and for the need to achieve Zero Hunger, ensuring food security and nutritious diets for all. Awareness of global food problem given to students. The total number of people suffering from a lack of food is over one billion people worldwide. The fact is that population growth outpaces agricultural production and the development of agricultural technologies. Information on the Five Food Groups are given to Students. The five food groups are Vegetables and legumes/beans, Fruits, Grain (cereal) foods, mostly wholegrain and/or high cereal fibre varieties, Lean meats and poultry, fish, eggs, tofu, nuts and seeds and legumes/beans, Milk, yoghurt cheese and/or alternatives, mostly reduced fat.

Impact & Sensitization	Awareness of farmers' problems, proper usage of food, healthy food habits, No wastage of foods.
Faculty Coordinators	

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ECO CLUB REPORT

Name of the Event organised	**Swachh Sapthagiri abhiyan**
Date and Day	14.03.2019
Collaboration or Association	Health Club & NSS
Issues addressed	Cleanliness of surroundings
Place of the event conducted	SCE surroundings

A campus cleaning programme was conducted by HASIRU Eco club in collaboration with Health club and NSS wing on 14th march, 2019 at the Sapthagiri College of Engineering. A total of 100 volunteers participated in the programme. Dr. K N Ravi HOD of Electrical department initiated cleaning activities among volunteers. He motivated students towards **'Clean India'** by his inspirational talk. The volunteers cleaned the entire campus wearing gloves and collected all the litter in big bags for disposal. The volunteers were instructed to clean their hands with soap at the end. Refreshments were distributed to volunteers. Programme officers carried out all the arrangements along with the Programme Coordinators for the smooth conduct of the programme.

Impact & Sensitization	Students got the awareness on keeping the surroundings and environment clean.
Faculty Coordinators	Dr.Tulsidas D, Associate Professor, Ravishankar M N, Associate Professor.

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HASIRU-ECO CLUB REPORT

Name of the Event organised	Awareness on Dengue and Malaria
Date and Day	02/04/2019 Tuesday
Issues addressed	Prevention of Dengue and Malaria
Place of the event conducted	Govt School

Report:

A team of student volunteers organized an event **"Awareness on Dengue and Malaria"** at Govt School. The Program was organised and co-ordinated by Dr. Tulsidas (Community club) along with students from Community club. Students and Teachers of Govt School were given information about the cleanliness to be maintained for preventing Dengue and Malaria. The teachers were happy for the active participation of college students. Teachers appreciated our students for their honest hard work towards social responsibility and commitment towards the community. The awareness is created among the students and Teachers by conducting a session on dengue and malaria prevention, will learn more about measures to stay healthy and what all to do in case of infection. The students are taking active steps to spread awareness, participating in making a change, and practicing preventive measures in their daily lives.

The awareness programs can deeper only in schools. School students are better equipped to understand the reasons behind the preventive steps they are to take than the general public out there. They can better understand the difference in species that lead to the spread of those diseases, how they fly around at different times of the day and how fever along with headaches are symptoms on one disease but not the other. School students are in a better place to persuade their parents or anyone in the society to visit a clinic for they know the science that goes on in the backdrop and can put forth logical arguments to anyone

Impact & Sensitization	Clean Area/Village with proper measures to prevent Dengue and Malaria
Faculty Coordinators	Dr.Tulsidas D & Prof. Prashanth Kumar H P

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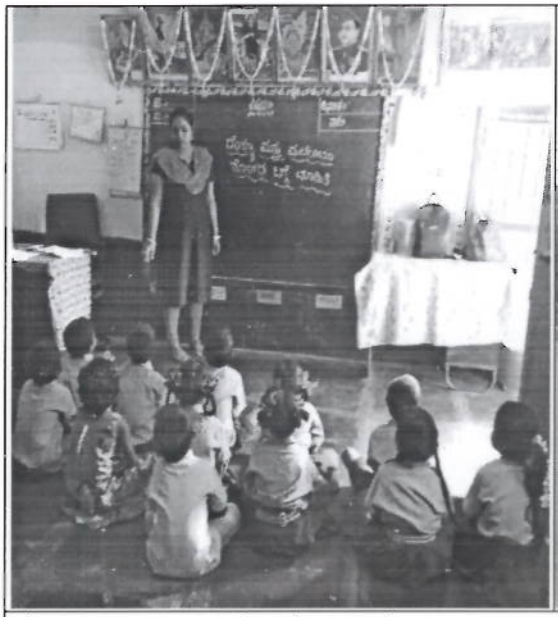
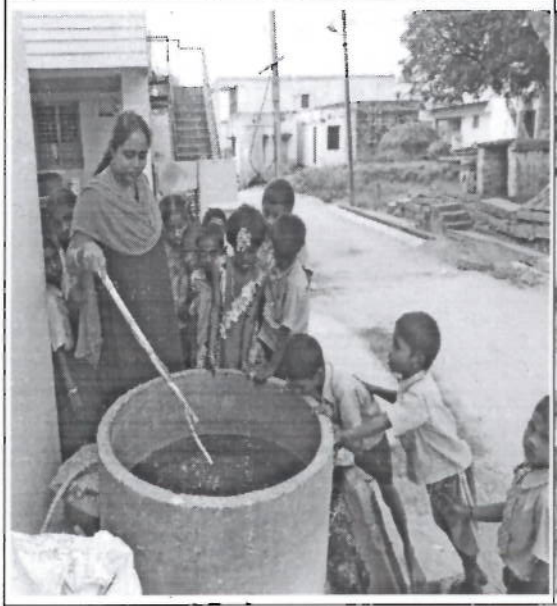
Photos



Awareness session for students

Places of causes of diseases



Places of main causes of diseases

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SAPTHA-SAMATHA
FOR
EQUAL OPPORTUNITIES COMMIMITTE(EOC)

REPORT ON

Date: 26-10-2018

Awareness Program on Good Touch and Bad Touch

Agenda: To conduct "Awareness Program on Good touch and Bad touch", to the Students by Equal Opportunity Committee (EOC).

Objective: The objective of the Program is to provide basic awareness about Good touch and Bad touch among Children.

Resolution:

In current days, we hear a lot about child abuse and molestation from newspapers and media. So it is the growing concern among parents and teachers about the safety of children. To provide the awareness on good touch and bad touch among the children some of the concepts were covered by EOC team during program such as Our bodies are unique, Safe and unsafe touch, Trusted circle and Reinforcing the rule form our team.

During the program the following pictures were taken by EOC team:

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During the program, the children were very enthusiastic and interactive. They answered questions and were eager to learn. It was a workshop about how to teach the difference between 'good touch' and 'bad touch. The awareness program was grand success in terms of participation and learning opportunities and students and our Equal Opportunities team (EOC) was happy with it.

Convener

Dr H.R. Ranganatha
Prof. & H.O.D
Dept.of Information Science & Engg.
Sapthagiri College of Engineering
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Chairman

Principal
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SAPTHA-SAMATHA
FOR
EQUAL OPPORTUNITIES COMMIMITTE(EOC)

REPORT ON

Date: 22-02-2019

Awareness program on women Hygiene

Agenda: To conduct awareness Program on Hygiene for Women.

Objective: The main objective of the program is to provide Awareness on Women hygiene by our Team of students for social backward society women.

Resolution:

Equal Opportunity Committee (EOC) of Sapthagiri College of Engineering believes that rural woman's health and welfare is of prime importance and conducts menstrual hygiene camps with an aim to create awareness on adopting hygienic practices amongst women. More than 300 million women and girls in India do not have access to safe menstrual hygiene products; endangering their health, curtailing their education and putting their livelihoods at risk. Women groups are educated on the proper usage and disposal of sanitary pads as well. In these awareness camps, there is also a free distribution of sanitary pads to encourage usage.

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This initiative is then handed over to an enterprising local woman, who is not only trained to impart awareness but is also supported in setting up of a small manufacturing unit for sanitary napkins. We create awareness amongst women with the belief that it will serve the dual purpose of livelihood opportunities to women by making available a low cost product to rural women as well, and enabling them to adopt hygienic practices.

Minimization of the medical illnesses related to reproductive tract infections in women and girls.

- Training and habit formation to use sanitary napkins and maintain hygiene during periods.
- Ensure that the girl child does not miss school which results in reduction in absenteeism.

Convener

Dr H.R. Ranganatha
Prof. & H.O.D
Dept.of Information Science & Engg.
Sapthagiri College of Engineering
14/5 Chikkasandra, Hesaraghatta Main Road
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Chairman

Principal
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SAPTHA-SAMATHA
FOR
EQUAL OPPORTUNITIES COMMIMITTE(EOC)

REPORT ON

Date: 25-April-2019

Awareness Program on Government Schemes for Women

Agenda: To create "Awareness on Government Schemes to Women" for social backward women.

Objective: The main objective of the programis to create awareness and explain about benefits of Government schemes to social backward society women.

Resolution:

India is a land of customs, tradition and practices which have been developed through centuries to centuries. These customs, tradition and practices become the consciousness of our society. But at the same time, we can't ignore the patriarchal system of our society and male superiority. In fact, principles of gender equality are enshrined in our Constitution. The Constitution of India not only grants equality to women but also empowers the State to adopt measures of positive discrimination in favour of women.

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So, Equal Opportunity Committee (EOC) of SCE has conducted awareness program on schemes which are given by government for welfare of women from social and economic backward society.

The Schemes such as "One Stop Centre Scheme", "UJJAWALA", "Rajiv Gandhi National Creche Scheme for the Children of Working Mothers", "SWADHAR Scheme", "Nari Shakti Puraskar" etc., procedure and benefits of these programs.

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HASIRU-ECO CLUB REPORT

Name of the Event organised	Drive on SCE hostel food wastage survey and management
Date and Day	08-08-2018
Collaboration or Association	NA
Issues addressed	Reduction of wastage of food in the college hostel
Place of the event conducted	College hostel

Student volunteers made a survey of wastage of food in the college hostel. The Program was organised and co-ordinated by Prof. Prashanth Kumar HP (convener, Eco-club). The students from different departments of SCE participated in the survey process. Student coordinators of Eco Club 'Hasiru' prepared a Survey questionnaire and then fine tuned with the help of faculty members of the club. The student volunteers assembled at the hostel and then survey randomly with the hostilities about the wastage of food. All the necessary provisions and arrangements were made for the student to participate without any difficulty. The questionnaire depicts different aspects of wastage of food in the hostel. Student volunteers also educated the hostilities not to waste the food. A report was given to the principal and discussed how to minimise the food wastage in the hostel. Awareness was provided on how waste can be reduced, reused, recycled and recovered in a better manner in order to keep the hostel environment clean and safe.

Impact & Sensitization	Student learnt about wastage of food and its bad effects on other people. They also learnt how to keep the hostel environment and surroundings clean by proper disposal of waste food.

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HASIRU-ECO CLUB

SERVEY ON HOSTEL FOOD WASTAGE AND ITS MANAGEMENT

1. Do they change the hostel food menu frequently?

Yes No

2. What is the reason for hostel food getting wasted daily?

Extra food is cooked Quality of food not good Eating fast food outside

3. How much amount of food waste in a day?

A large amount an average amount Very little

4. Are they maintaining hygiene in the kitchen?

Yes No

5. How can the wastage of food be reduced in hostel?

By improving quality of food By Cooking sufficient amount By avoid eating fast food

6. Is the food menu chosen by Management, student or Warden?

Management Warden Student

7. Is the food provided in the hostel hygienic?

Yes No

8. Which meal do you skip normally?

Breakfast Lunch Dinner

9. Is the hostel food nutritious or not?

Yes No

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HASIRU-ECO CLUB REPORT

Name of the Event organised	**BEST OUT OF WASTE**
Date and Day	**10-09-2018** MONDAY
Collaboration or Association	COMMUNITY CLUB
Issues addressed	Waste can be eliminated in a better manner by making them into novel and usable products.
Place of the event conducted	BIOTECHNOLOGY LAB

Report: *HASIRU-Eco club* organized an event **"Best Out of Waste"** in the College at BT Lab. The Program was organised and co-ordinated by Prof. Prashanth Kumar HP (Ecoclub) in association with Prof. Tulsidas (Community Club) along with students from both the clubs. The students from different departments of SCE participated in the competition on **'Best out of Waste'.** Initially the student coordinators of Eco Club *'Hasiru'* told the student participants enrolled in the event to collect the different waste items in the college like used paper, cardboard, plastic bottles, juice cartons, cans, threads, wires, wooden sticks, metal scrap, disposable plates and cups, CD and DVDs, batteries, electric bulbs, pens, envelopes, hangers, keys, rubber bands, tinfoil etc. The waste collected was dumped at a specified place and segregated for the competition. The student participants were made to assemble at the event conduction place and were provided with the necessary raw materials *i.e.* waste collected along with few stationeries needed to make the usable products. All the necessary provisions and arrangements were made for the student to participate without any difficulty. The students participated with interest and made different usable things like photo frames, hourglass, table lamps, lanterns, flower vase, pen stands, toys, carry bags, fountain, pin box, mini vacuum cleaner, air pump, dispenser, juicer etc. The nature of things given to the students were considered waste but the students made usable things in the competition by assembling and gluing bits and pieces of waste items to form entirely a new product from their own creative ideas. They have shown their creative and cognition skills and

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HASIRU- ECO CLUB REPORT

Name of the Event organised	World Food Day at College Premises
Date and Day	16/10/2018
Collaboration or Association	COMMUNITY CLUB
Issues addressed	Awareness of Food, wastage of food and farmer problems
Place of the event conducted	Sapthagiri College of Engineering, Bengaluru

Report: A team of faculty and student volunteers organized an event "World Food Day" at Sapthagiri College of Engineering, Bengaluru. The Program was organized and co-ordinated by Prof. Prashanth (ECO Club) along with students from both Community and Eco club. World Food Day is an international day celebrated every year around the world on 16 October in honor of the date of the founding of the Food and Agriculture Organization of the United Nations in 1945. The day is celebrated widely by many other organizations concerned with food security, including the World Food Programme and the International Fund for Agricultural Development. World Food Day each year on 16 October to commemorate the founding of the Organization in 1945. These events promote worldwide awareness and action for those who suffer from hunger and for the need to achieve Zero Hunger, ensuring food security and nutritious diets for all. Awareness of global food problem given to students. The total number of people suffering from a lack of food is over one billion people worldwide. The fact is that population growth outpaces agricultural production and the development of agricultural technologies. Information on the Five Food Groups are given to Students. The five food groups are Vegetables and legumes/beans, Fruits, Grain (cereal) foods, mostly wholegrain and/or high cereal fibre varieties, Lean meats and poultry, fish, eggs, tofu, nuts and seeds and legumes/beans, Milk, yoghurt cheese and/or alternatives, mostly reduced fat.

Impact & Sensitization	Awareness of farmers' problems, proper usage of food, healthy food habits, No wastage of foods.
Faculty Coordinators	

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ECO CLUB REPORT

Name of the Event organised	**Swachh Sapthagiri abhiyan**
Date and Day	14.03.2019
Collaboration or Association	Health Club & NSS
Issues addressed	Cleanliness of surroundings
Place of the event conducted	SCE surroundings

A campus cleaning programme was conducted by HASIRU Eco club in collaboration with Health club and NSS wing on 14th march, 2019 at the Sapthagiri College of Engineering. A total of 100 volunteers participated in the programme. Dr. K N Ravi HOD of Electrical department initiated cleaning activities among volunteers. He motivated students towards **'Clean India'** by his inspirational talk. The volunteers cleaned the entire campus wearing gloves and collected all the litter in big bags for disposal. The volunteers were instructed to clean their hands with soap at the end. Refreshments were distributed to volunteers. Programme officers carried out all the arrangements along with the Programme Coordinators for the smooth conduct of the programme.

Impact & Sensitization	Students got the awareness on keeping the surroundings and environment clean.
Faculty Coordinators	Dr.Tulsidas D, Associate Professor, Ravishankar M N, Associate Professor.

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CONVENER

PRINCIPAL

Sapthagiri College of Engineering
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Principal
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HASIRU-ECO CLUB REPORT

Name of the Event organised	Awareness on Dengue and Malaria
Date and Day	02/04/2019 Tuesday
Issues addressed	Prevention of Dengue and Malaria
Place of the event conducted	Govt School

Report:

A team of student volunteers organized an event **"Awareness on Dengue and Malaria"** at Govt School. The Program was organised and co-ordinated by Dr. Tulsidas (Community club) along with students from Community club. Students and Teachers of Govt School were given information about the cleanliness to be maintained for preventing Dengue and Malaria. The teachers were happy for the active participation of college students. Teachers appreciated our students for their honest hard work towards social responsibility and commitment towards the community. The awareness is created among the students and Teachers by conducting a session on dengue and malaria prevention, will learn more about measures to stay healthy and what all to do in case of infection. The students are taking active steps to spread awareness, participating in making a change, and practicing preventive measures in their daily lives.

The awareness programs can deeper only in schools. School students are better equipped to understand the reasons behind the preventive steps they are to take than the general public out there. They can better understand the difference in species that lead to the spread of those diseases, how they fly around at different times of the day and how fever along with headaches are symptoms on one disease but not the other. School students are in a better place to persuade their parents or anyone in the society to visit a clinic for they know the science that goes on in the backdrop and can put forth logical arguments to anyone

Impact & Sensitization	Clean Area/Village with proper measures to prevent Dengue and Malaria
Faculty Coordinators	Dr.Tulsidas D & Prof. Prashanth Kumar H P

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VISVESVARAYA TECHNOLOGICAL UNIVERSITY
JNANA SANGAMA, BELAGAVI-590018

NATIONAL SERVICE SCHEME UNIT

REPORT ON SPECIAL CAMP

25/02/2019-03/03/2019

Ivarakanda Pura village,

HuraliChikanahalli Post, Bengaluru-560088

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14/5, Hesaragatta, Main Road, Chikkasandara, Bengaluru-560057 **2018-**

2018-19

INVITATION

SAPTHAGIRI COLLEGE OF ENGINEERING, BENGALURU

NATIONAL SERVICE SCHEME UNIT

Cordially invites you for the inaugural function
Of

NSS SPECIAL CAMP

2018-2019

On 25th February 2019 at 9:30 AM

Ivarakanda Pura village,
HuraliChikanahalli Post, Bengaluru-560088

NSS Program Officer
Dr. TULSIDAS.D
Sapthagiri College of Engineering

Principal
Sapthagiri College of Engineering
Chikkasandra, Hesaraghatta Road,
Bangalore-560 057

Guests

Smt. Shashikala Hanumaiah (President)

Smt. Varalakshmamma Muniraju (vice President)

HuraliChikkanahalli Gram Panchayat

Members

Smt. Lalitha, Smt. Mamatha, Shri. Mahendra, Shri. Munivenkatappa

Guests of Honour

Dr. Gananatha Shetty
(State NSS officer Govt. of Karnataka)

Dr. Appasaba.L.V.
(Program Co-Ordinator, NSS cell, VTU)

Shri G.D. Manoj
(Executive Director, SCE, Bengaluru)

Dr. K.L. Shivabasappa
(Hon'ble Principal, SCE, Bengaluru)

Dr.K. R. Nagabhushana
(Administrative Officer, SCE, Bengaluru)

Panchayat members and villagers, Government school staff, students and NSS volunteers

YOU ARE INVITED

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Sahyadri College of Engineering
Chikkasandra, Hesaraghatta Hobli
Bangalore-560057

NSS SPECIAL CAMP

ACTIVITY SCHEDULE

SL.NO	DAY	EVENT NAME
1	1	Inauguration & Temple Visit Temple Cleaning Basic Exercise
2	2	Village Cleaning
3	3	Awareness Program
4	4	Teaching Drawing, Dance and Englishto Govt. School Students
5	5	Teaching Chemistry Practical to Govt. School Students
6	6	Hesaraghatta Lake Cleaning
7	7	Free Health Camp for Villagers

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INTRODUCTION

The NSS team of Sapthagiri College of Engineering were all set for the Special Camp, which was held in Ivarakandapura, HuraliChikkanahalli Gram Pachayat. Dr. K L Shivabasappa, Principal, SCE and Dr. K R Nagabhushana, Administrative Officer, SCE adressed the NSS team about NSS and its history, need for NSS, services provided through NSS, benefits of doing service to the society through NSS and also moral values that can be incorporated through NSS. The NSS Special Camp was led by Dr. Tulsidas D, NSS Program Officer, SCE.

Volunteers for NSS comprised of students from various departments of engineering,SCE. Essential accesories for the activities planned for the camp were taken and every student was given reopnsibility to take care of a particular accesory. All the volunteers were informed about his/her responsibility and the norms to be followed during the camp.With the support of our belevoed Principal, Administrative Officer, and Head of Department of various branches, the NSS team set off for the day.

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Chikkasandra
Bangalore

INAUGURATION& TEMPLE VISIT

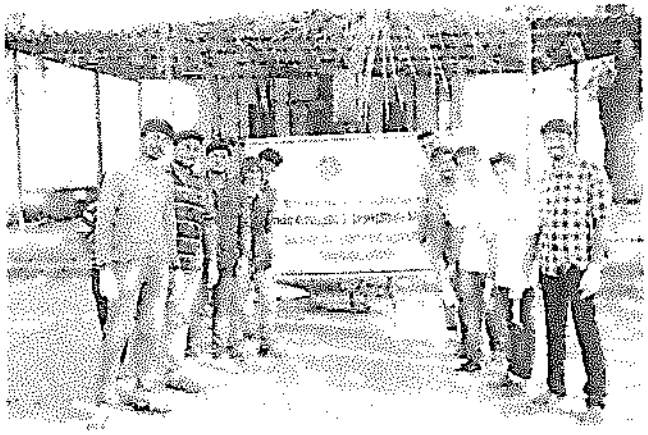
The NSS team reached Ivarakandapura and took the blessings of Lord Anjaneya and Lord Shiva. Lord Shiva's temple was centuries old and had history of Mahabharata. The temple also had five incarnations of Lord Shiva.

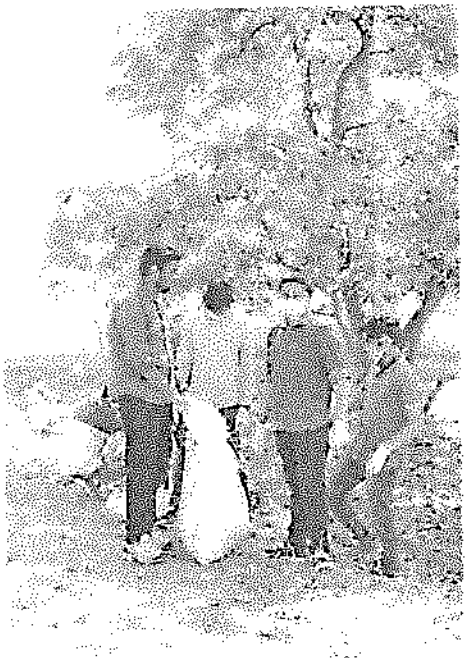
The NSS Program Officer, Dr. Tulsidas D along with tow volunteers visited the Gram Panchayat and acquired permission for the NSS Special Camp. The NSS team sat down and discussed with the villagers about the improvements that could be carried out during the period of our stay. Out of the many issues expressed by villagers, we chose vital issues i.e., cleanliness, health and education. Keeping the issues intact, we planned the activities to be carried out. According, we prepared the schedule.

TEMPLE CLEANING

The first issue that the NSS team took up was cleaning the temple. The NSS team was divided into teams and each team was given a specific location around the temple to clean. The first priority was to make the surrounding plastic-free. In order to achieve the goal, each team was given a bag to collect the plastic around the temple.

After all the plastic was collected, they were all gathered in a place and they were later moved to the municipality garbage truck. The student also unplanted the weed which was grown around the temple and also on the roof of the temple.





BASIC EXERCISE

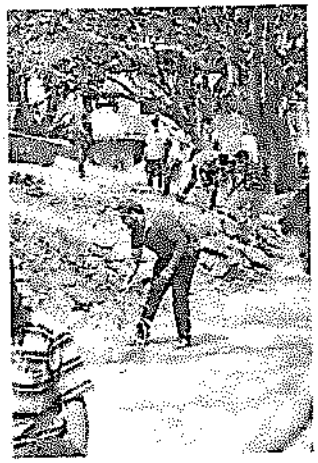
The NSS Program Officer, Dr. Tulsidas D explained to the NSS team about the importance of day to day exercise and its effects on health. We were taught few basic exercises that we could perform every day to keep ourselves healthy. The NSS team spent the next one hour exercising.

The NSS team was also learnt few Yoga positions and we also understood the importance of ancient practices in modern life. The NSS team was also suggested to convey this message to the villagers.

SWACHH VILLAGE

The NSS team entered the village and divided themselves as a team and each team were given specific roles to clean.

The first priority of the team was to make the village plastic-free. Each team collected plastic and accumulated in a bag. These bags were put together and transferred to the municipality garbage truck.Also, the teams gathered leaves and piled them in a corner.



HONEY BEE CULTIVATION

The NSS team were taken to a nearby house where honey bees were breaded. A resource person, Mr. Hanumanthappa, told the team about the honey bee culture. He gave information about the types of bees, nature of honey bee culture, environment conditions required for honey bee cultivation, honey yield and honey wax preparation. He also gave us information about the places where we could buy the honey bee crates as well as the honey bees.

Mr. Hanumanthappa explained us the whole process of honey bees making honey. Starting from the type of bee to keep at home i.e., suitable for cultivation, he took us through process where honey bees took nectar from flowers and used it in the formation of honey.

AWARENESS PROGRAM

The NSS team planned to create awareness about three major issues – Health, Education and Voting. In order to achieve the goal, we created sign boards about each one of these issues and split into teams among ourselves. All the teams went into the village and spoke to village people about the issues concerned with health, education and voting thereby creating awareness among village people regarding these issues.

The NSS team addressed the following:

- Health is very important for all and it should be taken care with utmost cautiousness.
- All the children must be educated.
- Everyone above 18yrs must vote for the overall development of the country.

The teams also gave information about the health camp that was conducted on the last day of the camp.

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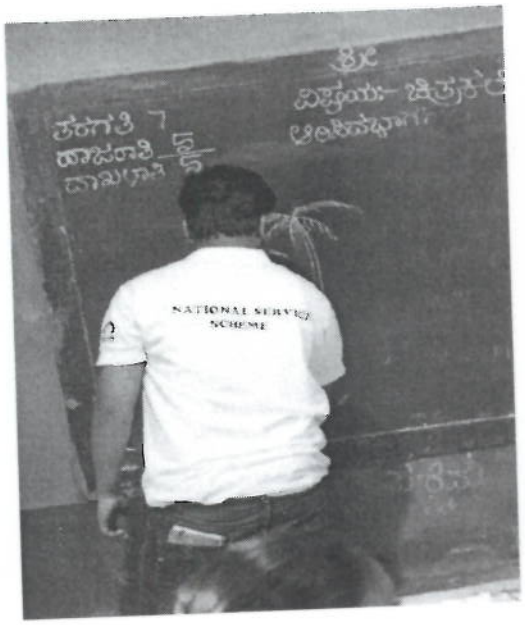
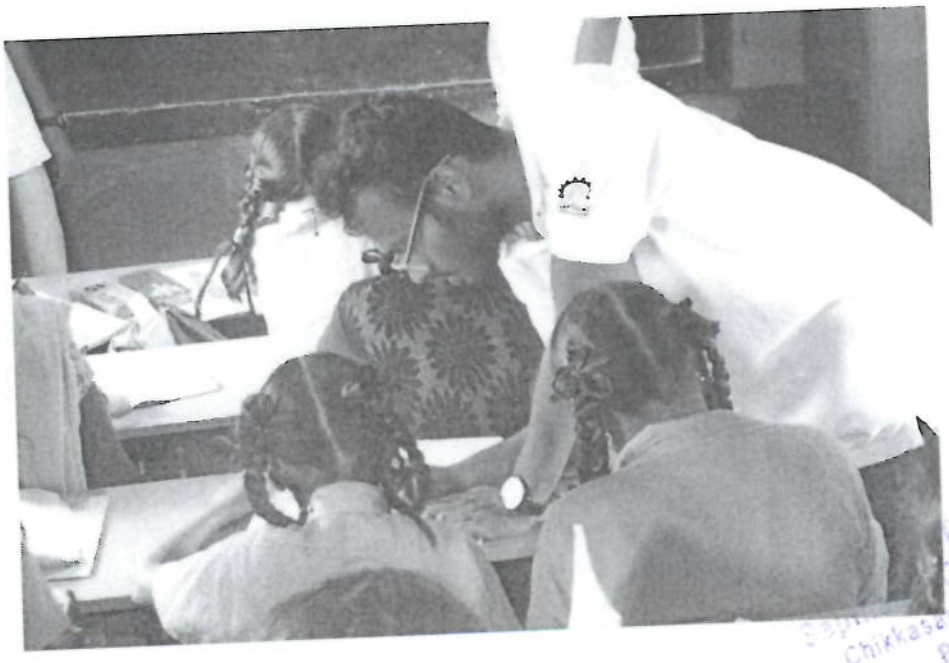
TEACHING DRAWING, DANCE AND ENGLISH

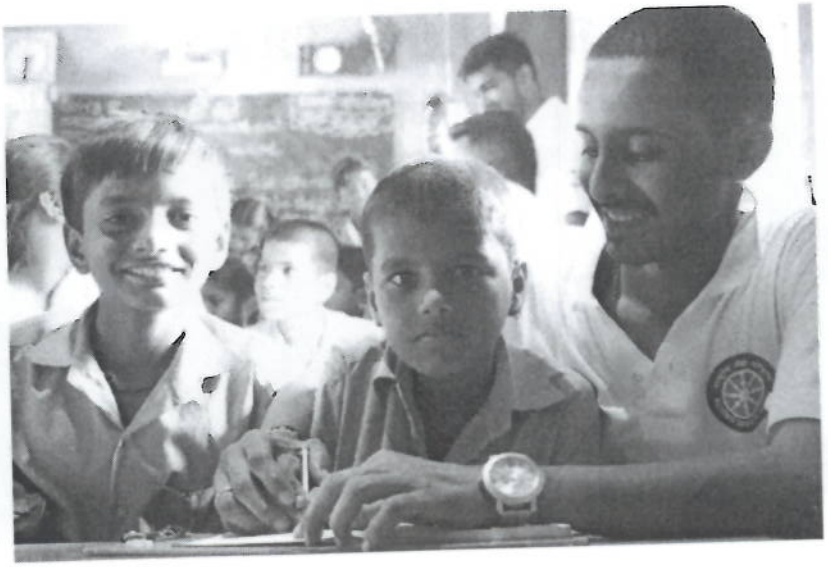


The NSS team visited the Government school in Ivarakandapura. We interacted with the students and we got to know their immense interests in the field of arts. Hence, we decided to teach them the art of sketching and dance.

We also recognized the difficulty they were facing when they tried to communicate in English and hence, we chose to teach them basic English.



TEACHING ENGLISH



The NSS team recognised the student's struggling to communicate in English. Hence, we chose few volunteers to teach the students basis English. The volunteers taught the students to write alphabets, to introduce themselves in English and also to greet one another.

The volunteers taught them parts of speech i.e., noun, pronoun, verb, adverb, adjective, preposition, conjunction and interjection. The team gave the students a set of statements and explained the different parts of speech for every statement. The volunteers also taught the students numerous rhymes which the students enjoyed a lot learning. The students were also taught the names of different things in English such as table, leaves, tree, chalk piece, stone, pillar, flag, flag post and many more.

HESARAGHATTA LAKE CLEANING

The NSS team chose to clean the Hesaraghatta lake. It was summer season and the lake was almost dry and was easier to clean at that stint. The NSS team chose to maintain the same propaganda of making the lake plastic-free. The team was divided into a number of sub-teams and each team went onto clean different parts of the lake.

The volunteers collected various plastics such as chips covers, biscuit covers, juice bottles, liquor bottles and also lot of cloth which were carelessly thrown into the lake. The volunteers collected the wastes in gunny bags and these bags were finally disposed on to a municipal truck.

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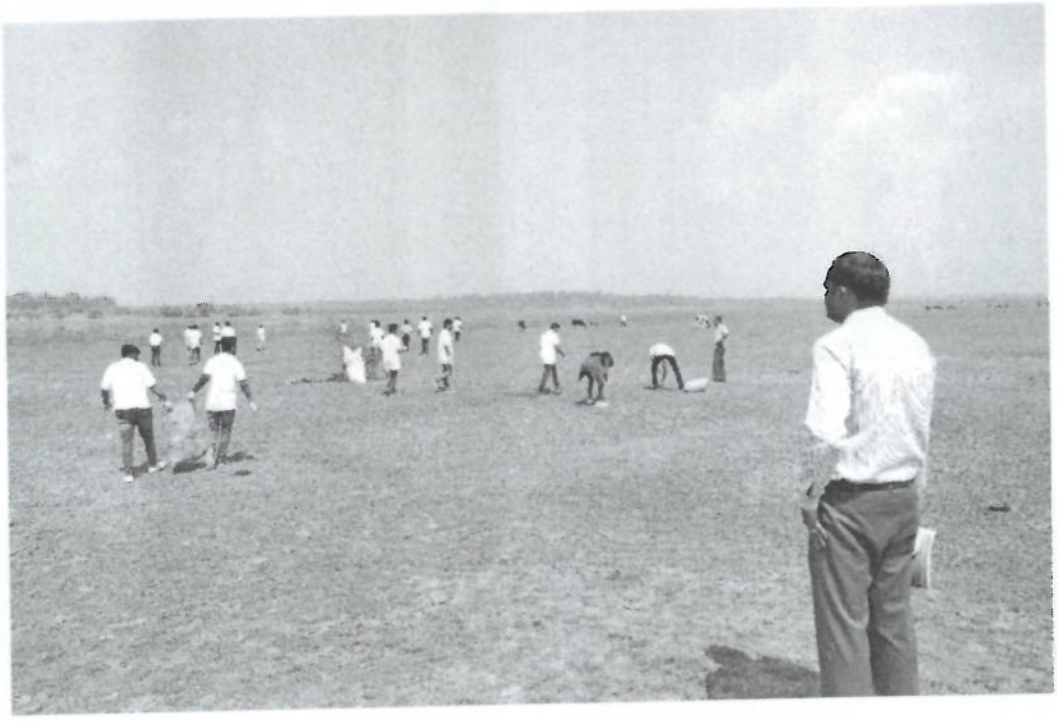
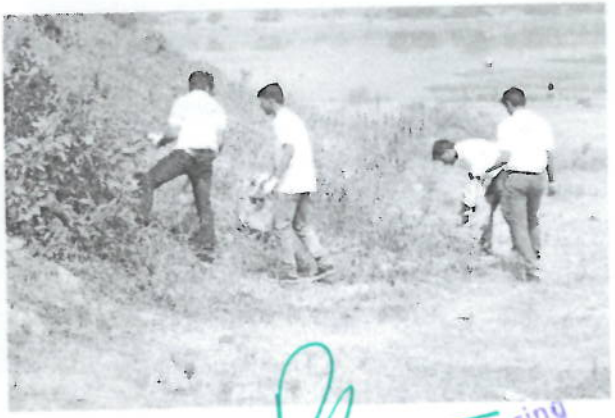
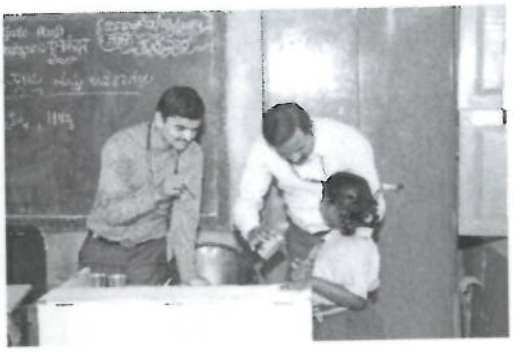




TEACHING CHEMISTRY PRACTICALS TO STUDENTS BY OUR COLLEGE FACULTY



The NSS team interacted with the Headmaster of Government School about the problems faced by the students. The Headmaster expressed the lack of faculty to teach chemistry to the students. Hence, the NSS team requested Dr.Gurushanth, Department of Chemistry and Prof. Prashanth Kumar, Department of Biotechnology, Sapthagiri College of Engineering to teach chemistry to the students and the professors obliged.

The professor engaged the students for an entire day and taught the students some basics fundamentals of chemistry and tried to build in them the thirst to know more about the fascinating world of chemistry by performing some basic yet interesting experiments. Professor also made the students understand the connection between the experiment output and the chemical reasoning behind it. The students were thrilled by witnessing the experiments and they expressed their eagerness to know more. The students also asked many questions about the experiment they witnessed and got it cleared. The professor called the students up to the dais and instructed them while the students were encouraged to perform the experiments.

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End of the NSS Special Camp

The NSS team requested the management of Sapthagiri Medical College to conduct a one day health camp for the people of the village. On the day of the Health Camp, a team of doctors along with nurses with specialization in eye, skin, ENT, general and gynecology arrived at Ivarakandapura. The Health camp was held in the Government School, Ivarakandapura.

The villagers came in hand and registered in the registration desk and according to their need, they were sent to a particular specialist for treatment. We also provided transportation facilities for the villagers who were unable to walk.

NSS - Coordinator

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SAPTHAGIRI COLLEGE OF ENGINEERING

SWACHH BHARAT ABHIYAN

SAPTHAGIRI HELPING HANDS AND NSS COLLABORATION WORK

Swachh Bharat Abhiyan (SBA) or Swachh Bharat Mission (SBM) or Clean India Mission in English is a campaign in India that aims to clean up the streets, roads and infrastructure of India's cities, smaller towns, and rural areas.The campaign was officially launched on 2 October 2014 at Rajghat, New Delhi by Prime Minister NarendraModi. It is India's largest cleanliness drive to date with 3 million government employees, school students, and college students from all parts of India participating in 4,041 statutory cities, towns and associated rural areas. Modi has called the campaign "*Satyagrah se Swachhagrah*" in reference to Gandhi's "Champaran Satyagraha" launched on 10 April 1917.

In Sapthagiri College of Engineering it was initiated by the first year students of 2017-18 academic year for creating social awareness. Sapthagiri welfare committee was formed on March 2, 2018 under the guidance of Dr.B.S.Krishna, HOD, Department of Chemistry. The details were undertaken by the faculty coordinator Dr.Tulsidas D, NSS Program officer, Department of Mechanical Engineering and Prof. Bharath, Department of Chemistry. Equally encouraged and supported by Dr.K.L.Shivabasappa, Principal, Sapthagiri College of Engineering and Dr. Nagabhusan, Administrative Officer, Sapthagiri College of Engineering.

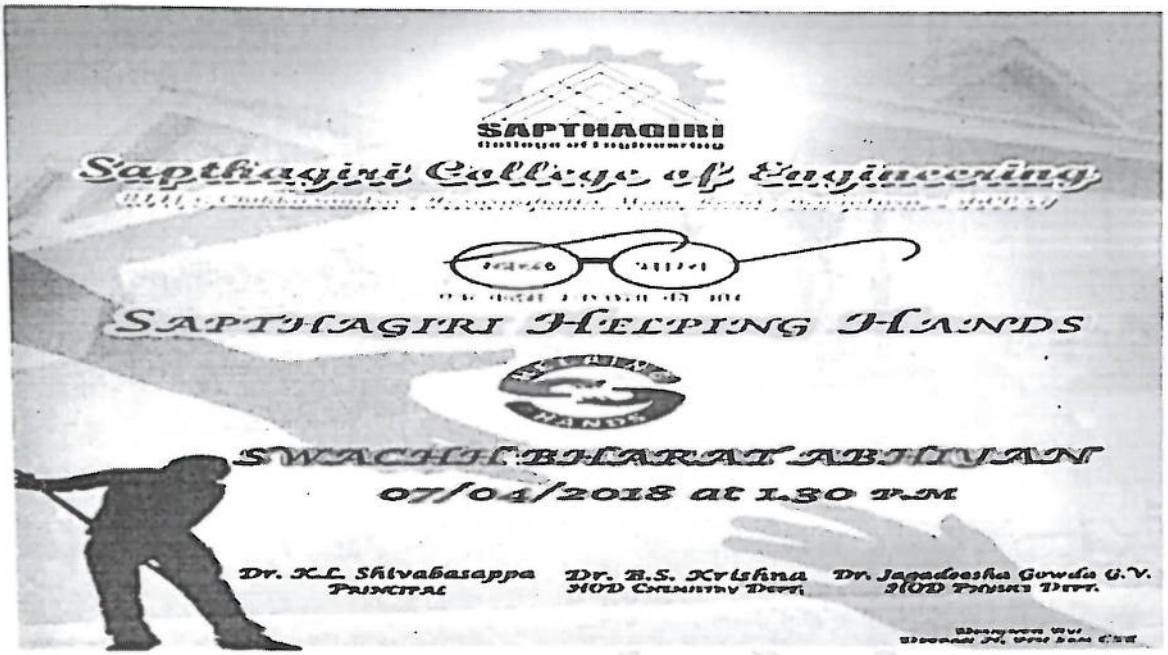
The first awareness program initiated by Sapthagiri Helping hands and NSS was "Swachh Bharat Abhiyan" to spread the awareness in and around the campus. The materials required for cleaning and sanitation was fulfilled by the college management. 40 students actively participated in the Abhiyan. Teams were created and were assigned to certain spots around the college campus like GelayaraBalaga layout and HanumantheGowdru Road., Hesarghatta, Bengaluruon April 07, 2018. Thewaste collected was dumped in a specific place and was ensured that the BBMP collected it. We got huge support and encouragement from the local communities. The college management provided refreshments at the end of the Abhiyan .We are planned to extend our work further with great progress towards the Development of Clean India.

"Though it is a difficult task, it can be achieved and for that people will have to change their habits." –Prime Minister Narendra Modi

Principal
Sapthagiri College of Engineering
Chikkasandra, Hesaraghatta Main Road
Bengaluru-560 057

THE CAMPAIGN WAS OFFICIALLY LAUNCHED ON 2 OCTOBER 2014 BY PRIME MINISTER NARENDRA MODI.

WHEN CRICKETER VIRAT KOHLI AND BOLLYWOOD ACTOR AMITABH BACHCHAN PICKED UP BROOM TO ACKNOWLEDGE THE SWACHH BHARAT ABHIYAN



OFFICIALPOSTER FOR THE SWACHH BHARAT ABHIYAN

GROUP PHOTO WITH THE TEAM

Principal
Sapthagiri College of Engineering
Chikkasandra, Hesaraghatta Road
Bangalore- 560 057

Garbage in the Street of Gelayara Balaga Layout, HanumantheGowdru Road.

STUDENTS ACTIVE INVOLEMENT FOR THE CLEAN OF HESARGHATTA ROAD CAMPAIGN.

NSS. Co-ordinator

Principal
Sapthagiri College of Engineering
Chikkasandra, Hesaraghatta Road
Bangalore- 560 057

SAPTAGIRI COLLEGE OF ENGINEERING

International Yoga Day

International Day of Yoga, or commonly and unofficially referred to as Yoga Day, is celebrated annually on 21 June since its inception in 2015. An international day for yoga was declared unanimously by the United Nations General Assembly. Yoga is a physical, mental and spiritual practice originated in India.

National Service Scheme (NSS Unit) of Sapthagiri College of Engineering celebrated International Yoga Day on 21st June, 2018. The inauguration function started with lamp lighting by our beloved Principal Dr.K.L.Shivabasappa, Administrative officer Dr. K.R. Nagabhushana, along with the HODs and staff of our college. The program involved demonstration and active participation in Yoga by the Principal, Administrative Officer and the Staff.

NSS Co-Ordinator

Principal
Principal
Sapthagiri College of Engineering
Chikkasandra, Hesaraghatta Road
Bangalore- 560 057

SAPTHAGIRI COLLEGE OF ENGINEERING
MEGA VOLUNTARY BLOOD DONATION CAMP

National Service Scheme (NSS Unit) of Sapthagiri College of Engineering organized a Mega Voluntary Blood Donation Camp for all students of various branches on 28th February 2018 in Collaboration with Indian Red Cross Society, (Karnataka Branch) Bangalore. The inauguration function started with lamp lighting by our beloved Principal Dr.K.L.Shivabasappa, Administrative officer Dr. K.R.Nagabhushana, Sri Balakrishna Shetty, Chief Convener-IRCS, Lion L. Nagesh, President, Lions Club Jayanagar and equally encouraged by Management, HODS of various departments, Staff, Students of Sapthagiri College of Engineering, Bangalore.

SAPTHAGIRI
COLLEGE OF ENGINEERING
14/5, Chikkasandra, Hesaraghatta Main Road, Bengaluru - 560 057.

NATIONAL SERVICE SCHEME
in association with

INDIAN RED CROSS SOCIETY BLOOD BANK
LIONS CLUB OF BANGALORE JAYANAGAR

organizing

MEGA VOLUNTARY BLOOD DONATION CAMP

Date : 28-02-2018 , Wednesday
Time : 9:00 a.m. to 4:30 p.m.

Venue :
New Block Ground Floor (Civil Block)

Inauguration
Sri. G. DAYANAND
Chairman, SCE

Lighting of the Lamp
Sri. G.D. MANOJ
Executive Director, SCE

Presided by
Dr . K.L.SHIVABASAPPA
Principal

Gracious Presence
Dr. K.R. NAGABHUSHANA
(Administrative officer, SCE)

Sri. BALAKRISHNA SHETTY
Chief Convener - Blood Donation
IRCS Karnataka

Lion L. NAGESH
President
Lions Club of Bangalore Jayanagar

Dr. D. TULSIDAS
(NSS Co-ordinator)

With Best Compliments from :
Management , Staffs & Students of SCE

INAUGURATION FUNCTION OF BLOOD DONATION CAMP

Principal
Santhagiri College of Engineering
Chikkasandra, Hesaraghatta Road
Bangaloro-560 057

HAND OVER OF DONATED BLOOD PACKET TO INDIAN RED CROSS SOCIETY

STUDENTS DONATING BLOOD

STUDENTS PRE-CHECK UP BEFORE DONATING BLOOD

Principal
Sapthagiri College of Engineering
Chikkasandra, Hesaraghatta Road
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CELL AND CLUB ACTIVITIES

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SAMARTHINI-Women Empowerment Cell

Self Defence Program for Girl students and lady Faculty with Gender Equity

The Women Empowerment Cell in association with Prevention of Sexual Harassment Cell conducted Self Defence training programme for girl students and Lady faculties of Sapthagiri College of Engineering on 8/3/2019 in association with Bangalore Mirror. Dr. M.G. Prasad from Zen Sports who is an International Karate Champion and Karate Coach was the trainer for self defence. This event was managed by the WEC Convener Prof. Prerana Chaithra.

As there are lot of harassment cases and threats ladies as to face in their daily life, whether it is at workplace or while travelling or crowded areas. Dr. Prasad trained the girl students and lady faculties and staff in self defence techniques and gave tips to them as to how to protect themselves. Thus International Women's Day was meaningfully celebrated through this event to empower women against harassment.

Girl Students & lady faculties of SCE along with the Self Defence Trainer Dr. M.G. Prasad

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International Karate Champion and Coach Dr. M.G. Prasad giving Self Defence Training

Students practicing the Self Defence Techniques

Convener Prof. Prerana Chaithra along with the Trainer Dr. M.G. Prasad and the Bangalore Mirror Team

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BENGALUREANS LEARN STREET SURVIVAL AND PRACTICAL DEFENCE MOVES

Karate kids

Rush of women at Bangalore Mirror event in two campuses; more in offing

SAPTHAGIRI COLLEGE OF ENGINEERING

LISAA SCHOOL OF DESIGN

VKBM Women Safety Week

March 08 to 16, 2019

Iffath Fathima

mybangaloremirror@timesgroup.com

TWEETS @BangaloreMIRROR

On International Women's day, Bangalore Mirror hosted a self-defence workshop for women at two educational campuses. A large number of female students gathered and trained under master fitness trainer and coach for the Indian National Karate team, DR MG Prasad, for street survival skills training. The training focuses on effective ways to defend oneself from a violent situation. "The increase in the number of crimes is alarming and it is important that every women be trained with street survival skills," said Prasad. The self-defence classes were conducted at Lisaa School of Design, Koramangala and Sapthagiri College of Engineering, Hesaraghatta road.

The students were shown how one has to be quick and smart if they find themselves in a sticky situation. "I did not know that only with my elbows and knees I could easily defend myself. The moves I learned were simple and powerful. We are advised to carry a pepper spray but learning how to physically tackle is much more handy. I feel confident now after the workshop," said Salma Nabeela, student from Lisaa School of Design.

Prasad also cleared the confusion about martial arts and street survival skills not being the same thing. "Street survival skills teaches you practical methods, instead of those old martial art techniques which usually take years of practice to effectively put together," said Prasad.

Many of the students complained that they were absurdly touched while travelling in buses and Prasad showed them two simple techniques to defend themselves in public transport. "He showed us how we can teach the person a lesson without creating a scene. We can use our elbows and just punch the chin of the person in a way like we are just getting of the seat and the other was the elbow attack. We can just swing our elbow backwards and strike the miscreants abdomen. These may sound vague, but are really powerful," said Megha from Sapthagiri College of Engineering.

Apart from that, the students were even taught on how to safe gaurd against chain snatchers or any other harassment attacks. The students thanked BM for hosting the event for all the women. "It was a great initiative. I learned a lot, thanks to Bangalore Mirror," said Kanika Khurana.

LEARN SOME DEADLY MOVES IN CUBBON PARK

Learn how to handle that pesky stalker or that roadside romeo. Bangalore Mirror, along with karate coach Dr MG Prasad, has organised self-defence classes at Cubbon Park on Sunday at 11 am. Join us and learn how to show perverts their place

Article about the Self Defence Event was published in Bangalore Mirror, March 9, 2019

Convener

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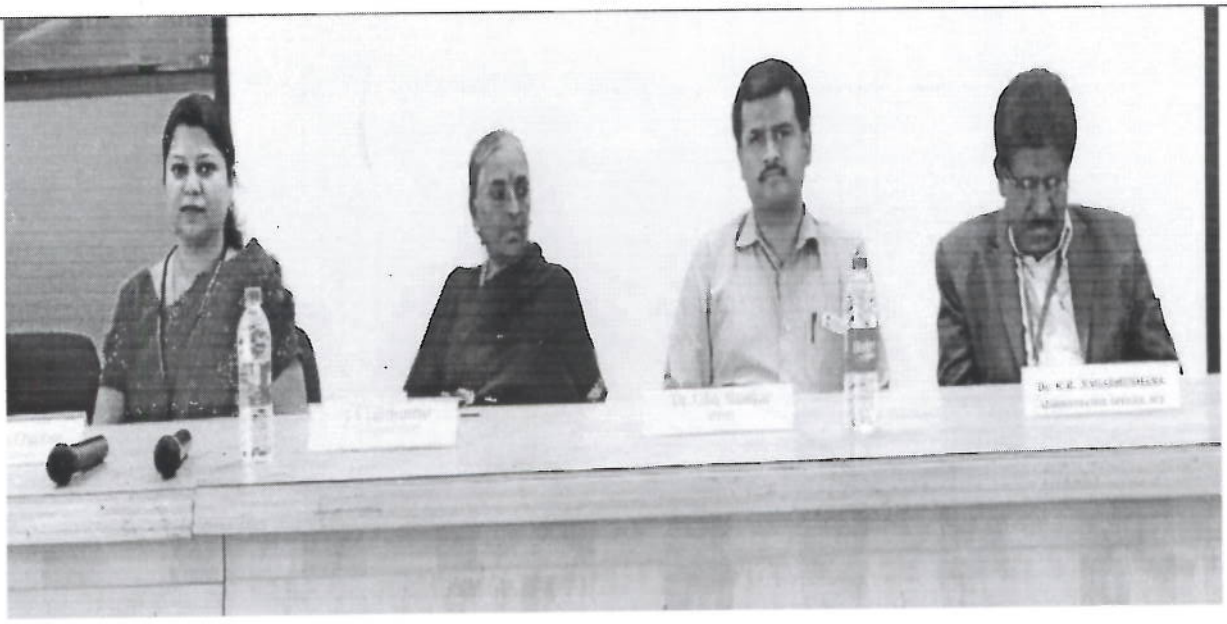
SAMARTHINI-Women Empowerment Cell

Awareness Program on "Equanimity by Prevention of Sexual Abuse and Harassment - Don't be silent"

The Women Empowerment Cell in association with Prevention of Sexual Harassment Cell conducted a Seminar on "**Equanimity by Prevention of Sexual Abuse and Harassment - Don't be silent**" by Dr. Udaya Shankar, department of Forensic & Toxicology, SIMSR&C, Bangalore on 17-4-2019 at Sapthagiri College of Engineering for the girl students and Lady faculties and staff of Sapthagiri College of Engineering. This event was managed by the ASHC Convener Prof. Prerana Chaithra. Dr. Udaya Shankar gave insight to the various sexual harassments. He motivated the girls and women not to get fight against these evils.

This seminar was organized to educate ladies about their rights, opportunities to determine their choices in order to have a better life and to help in establishing a better society. Dr. Udaya Shankar discussed about various laws that protect women and as to how to report such incidents to doctors and police.



Doctor Udaya Shankar, International Athlete T.V. Lalithamma, Administrative Officer Dr. Nagabhushana K R, & Convener Prof. Prerana Chaithra

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Felicitation of Dr. Udaya Shankar, for his contribution to the society through the field of Forensic Science thus enabling women to live in a better society.

Dr. Udaya Shankar giving an insight to the laws for protecting women and for defending themselves against sexual harassment & social issues

Convener

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SAMARTHINI-Women Empowerment Cell

Motivational Program on "Be a Role Model - No Gender Discrimination and not to be Sexual Pervert"

The Women Empowerment Cell in association with Prevention of Sexual Harassment Cell conducted a Seminar on "**Be a Role Model - No Gender Discrimination and not to be Sexual Pervert**" by Smt. T.V. Lalithamma, International Athlete, Educationist, Dramatist and Socialist on 17/4/2019 at Sapthagiri College of Engineering for the girl students and Lady faculties and staff of Sapthagiri College of Engineering. This event was managed by the WEC Convener Prof. Prerana Chaithra Smt. T.V. Lalithamma was felicitated for her contribution to the society through the field of sports, education and social services thus enabling to have a better society.

This seminar was organised to educate ladies about their rights, opportunities to determine their choices in order to have a better life and to help in establishing a better society. Smt. T.V. Lalithamma motivated the ladies and girls to be a role model to the society and to built a wonderful and prosperous society where all men, women and children can lead a peaceful and prosperous life.

Principal
Sapthagiri College of Engineering
Bangalore-560 057

Lighting of the Lamp by the International Athlete T.V. Lalithamma, Administrative Officer Dr. Nagabhushana K R, Doctor Udaya Shankar & Convener Prof. Prerana Chaithra

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Felicitation of Smt. T.V. Lalithamma, International Athlete, Educationist, Dramatist and Socialist for her Achievement in Various fields.

Convener

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SAMARTHINI-Women Empowerment Cell

Self Defence Tarining Program Mission Sahasi: to promote Equity

The Women Empowerment Cell (WEC) in association with Prevention of Sexual Harassment Cell and NSS Unit of SCE organized a 3-days Self Defence training programme for girl students of Sapthagiri College of Engineering from October 22, 2018 to October 24, 2018 in the college campus. This event under the name "Mission Sahasi: to promote Equity" was conducted for the girl students to safe guard themselves whenever they are in threats. The event was managed by the NSS co-ordinator Dr. Tulsidas D and the WEC Convener Prof. Prerana Chaithra. The training was given by the expert trainers from The Martial Arts Trust (R).

The Mission Sahasi aims at not just instilling confidence into women, but also to bring the much-required change in the 'Chalta Hai' attitude prevailing in the society towards women and their issues. It is a self-defence training programme for girls imparted by the finest of martial arts trainers and security experts. With the tagline "Making of the Fearless" the Mission is customized by expert trainers keeping in mind the threats faced by girls in their daily routine, be it on a crowded street or in empty train and to defend herself in any circumstance and the company of known or unknown people. Our college girl students participated in Self defence demonstration organized by Mission Sahasi at Central College Grounds, in Bengaluru on Tuesday October 30, 2018.

Girl Students of SCE along with the Self Defence Trainer.

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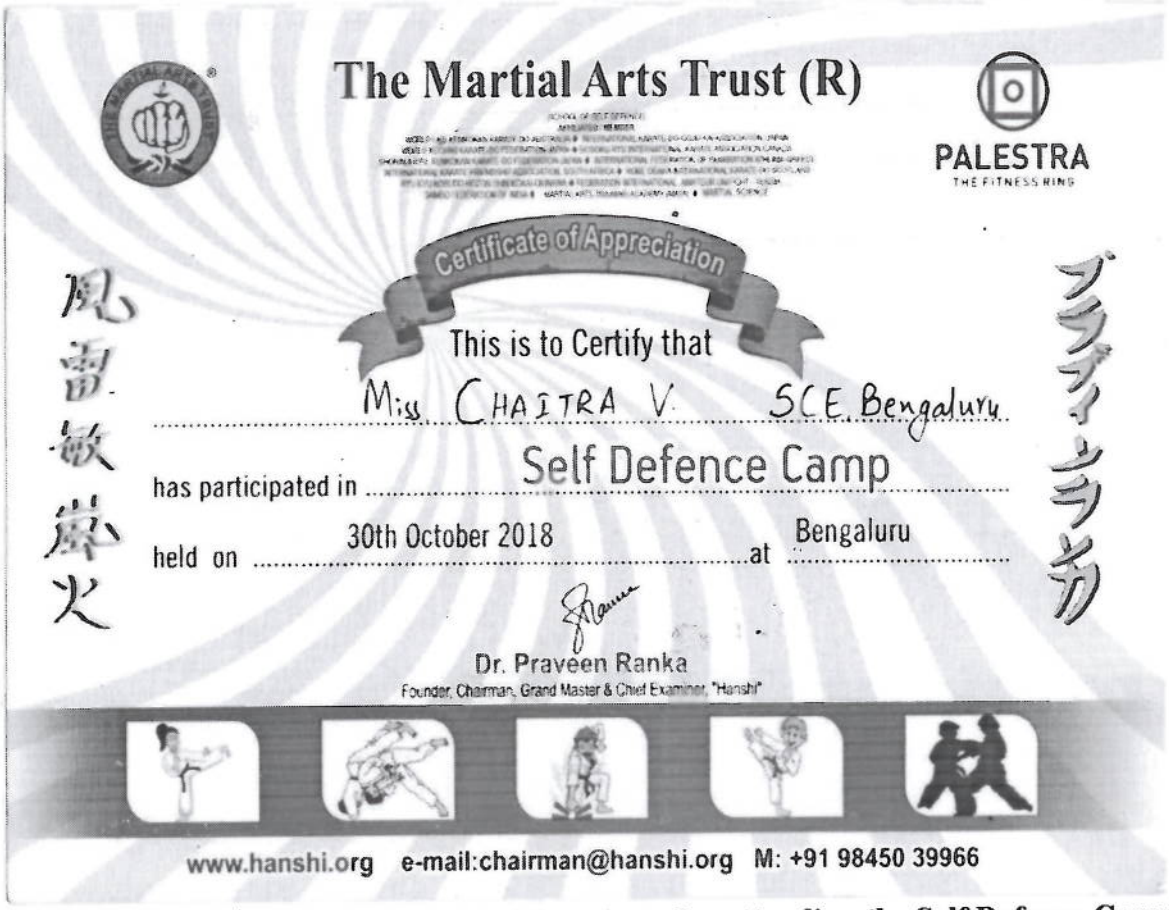
Expert Trainers from The Martial Arts Trust (R) giving Self Defence Training to the girl students of SCE



The Martial Arts Trust (R)

PALESTRA
THE FITNESS RING

Certificate of Appreciation

This is to Certify that

Miss CHAITRA V. SCE Bengaluru

has participated in Self Defence Camp

held on 30th October 2018 at Bengaluru

Dr. Praveen Ranka
Founder, Chairman, Grand Master & Chief Examiner, "Hanshi"

www.hanshi.org e-mail:chairman@hanshi.org M: +91 98450 39966

Participation Certificate issued to the girl students for attending the Self Defence Camp

Convener

Principal

Principal
Sapthagiri College of Engineering
Chikkasandra, Hesaraghatta Road,
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SAMARTHINI-Women Empowerment Cell

Extempore Event on "Respect for Women in Society is a Necessity for Equanimity of the Nation"

The Women Empowerment Cell (WEC) conducted an extempore on **"Respect for Women in Society is a Necessity for Equanimity of the Nation"** on 15/11/18 at Sapthagiri College of Engineering (SCE) for the girl students of Sapthagiri College of Engineering. This event was managed by the WEC Convener Prof. Prerana Chaithra. The students from all departments attended the event and girl students actively participated in the extempore.

This extempore was organized to bring about the awareness that women must be respected in the society. This leads to the Development of the society. It also prevents sexual harassment and domestic violence in the society leading to a peaceful society. Especially if the youths who are the architects of the future assimilate this it will help us to have a better society and in turn a better Nation.

Students participating in the extempore event on
"Respect for Women in Society is a Necessity for Equanimity of the Nation"

Convener

Principal
Sapthagiri College of Engineering
Chikkasandra, Hesaraghatta Road
Bangalore-560 057

Principal

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SAMARTHINI-Women Empowerment Cell

Debate Event on "Should Women get Equal Remuneration for Women in Sports and Entertainment fields for Equality"

The Women Empowerment Cell (WEC) conducted a debate on **"Should Women get Equal Remuneration for Women in Sports and Entertainment fields for Equality"** on 15/11/18 at Sapthagiri College of Engineering (SCE) for the students of Sapthagiri College of Engineering. This event was managed by the WEC Convener Prof. Prerana Chaithra. The students from all departments attended the event and also actively participated in the debate.

This debate was organized to reconsider the remuneration differences among men and women in the sports and entertainment industry. Even in the World renowned sports like Tennis, Football, Cricket, etc. the women players are getting less payment compared to the men players. In Corporate, Government sectors and Educational systems there is no pay discrimination and there is equality. It is a pathetic situation that even in Entertainment industries like film industry, Circus, etc. there is lot of pay differences among the male and female actors and performers. Therefore a debate was conducted to bring about awareness among the students to bring about changes in the future.

Students participating in the debate on

"Should Women get Equal Remuneration for Women in Sports and Entertainment fields for Equality"

Convener

Principal
Sapthagiri College of Engineering
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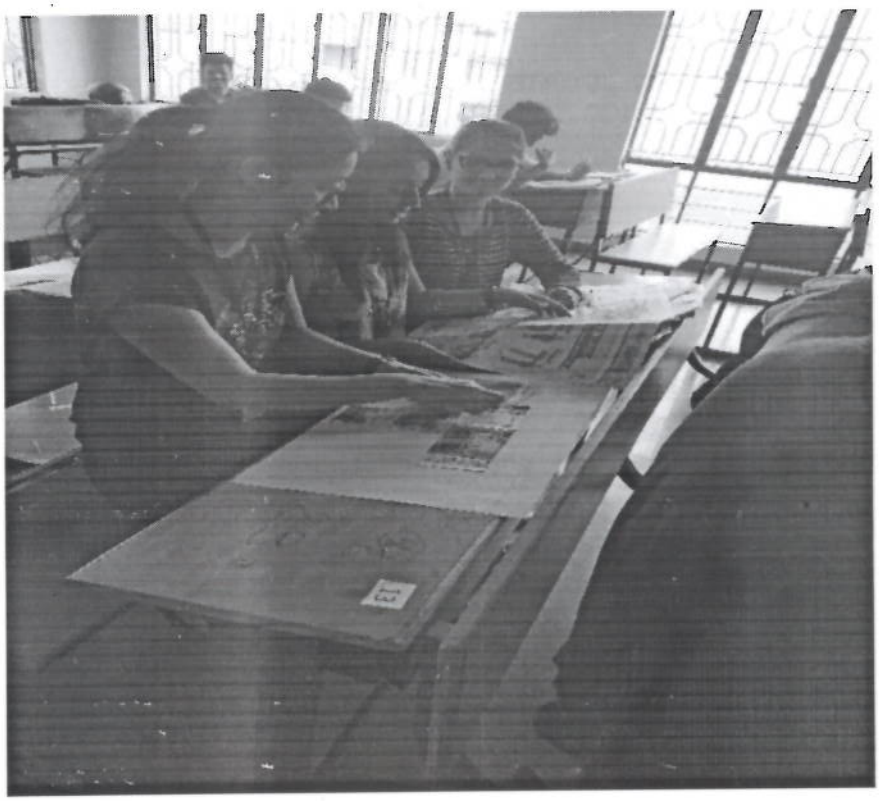
SAMARTHINI-Women Empowerment Cell

Collage Event on "Women Achievers: A sign of Equity"

The Women Empowerment Cell (WEC) conducted a collage on **"Women Achievers: A sign of Equity"** on 16/11/18 at Sapthagiri College of Engineering (SCE) for the girl students of Sapthagiri College of Engineering. This event was managed by the WEC Convener Prof. Prerana Chaithra. The girl students from all departments attended the event and also actively participated in collage.

This collage was organised to showcase the Women achievers in the different fields. These achievers will motivate other women t become achievers. They inspire the women that irrespective of barriers one can achieve, therefore establishing Equity in the world. This also enable the men to treat women with respect and to encourage them to become achievers.



Students participating in the collage event on

"Women Achievers: A sign of Equity"

Convener

Principal
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Principal

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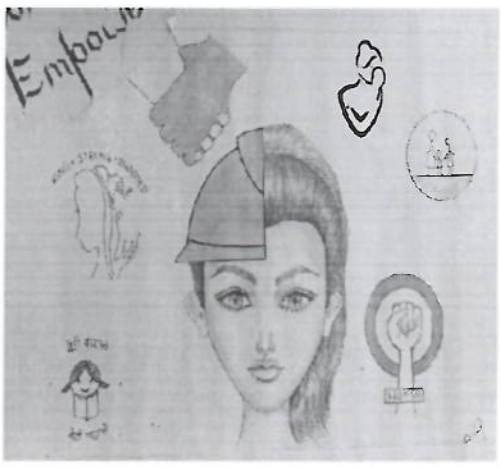
SAMARTHINI-Women Empowerment Cell

Sketch Event on "Women in different fields-Depicting Equality"

The Women Empowerment Cell (WEC) conducted a sketching event on **"Women in different fields-Depicting Equality"** on 17-09-2018 at Sapthagiri College of Engineering (SCE) for the girl students of Sapthagiri College of Engineering. This event was managed by the WEC Convener Prof. Prerana Chaithra. The girl students from all departments attended the event and also actively participated in sketch activity.

This sketching event was organized to emphasize on "Women in different field-Depicting Equality" as it is the process for women to redefine gender roles that allows for them to acquire the ability to choose between known alternatives that have otherwise been restricted from such ability. There are several principles defining women's empowerment such as, for one to be empowered, they must come from a position of disempowerment. The sketching event was organized to showcase role of women in different role and equal responsibilities in the development of the society.

The sketches drawn by students showed that empowerment definitions entail people having the capability to make important decisions in their lives while also being able to act on them.



Students participating in the Sketching event on "Women in different fields-Depicting Equality"

Convener **Principal**

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SAPTHA-SAMATHA
FOR
EQUAL OPPORTUNITIES COMMIMITTE(EOC)

REPORT ON

Date: 25-Sept-2018

Awareness Program on Children Safety

Agenda: To conduct "Awareness Program on Children Safety through Street Play" by Equal Opportunity Committee (EOC).

Objective: The objective of the Program is to create awareness program among the social backward society children for their safety.

Resolution:

The job of protecting kids most often falls to parents and caregivers, and it is up to them to familiarize themselves with safety risks in and around their homes and communities. Once you know the risks, you can take steps to plan for safety.

Principal
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SAPTHAGIRI College of Engineering
Creating Tomorrow

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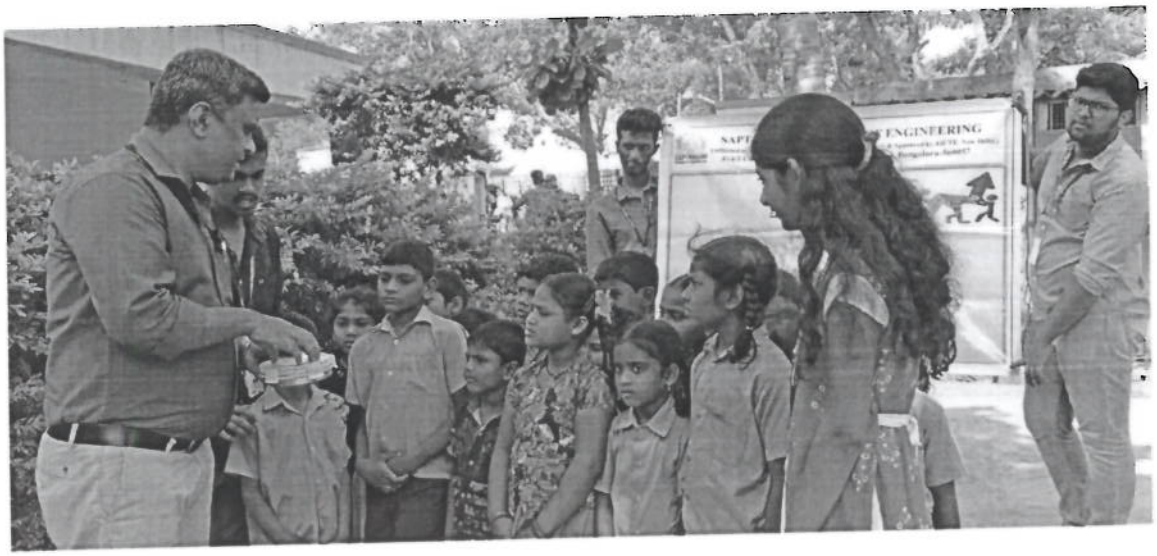

According to a news report from 2018, about 135,000 children are estimated to be trafficked in India each year. Trafficked children are sold into slavery, domestic servitude, beggary and for so many illegal activities. Children are kidnapped and often even bought from remote villages, more from impoverished families.

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SAPTHAGIRI College of Engineering
Creating Tomorrow

Sapthagiri College of Engineering

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The child trafficking industry is India's greatest shame and yet very little has been done about it in terms of policing. In a number of states, powerful cartels manage trafficking, buying off parents and the police to keep away legal restrictions. According to Child line India, some 1,000 to 1,500 children are smuggled from India to Saudi Arabia each year to beg during the Hajj.

Trafficked children mostly are from social backward people. So EOC of Sapthagiri College of Engineering has conducted awareness program among the children of social backward community.

Our Equal Opportunities team of faculties and students has explained the Do's and Don'ts to be followed by the children when they meeting a stranger by a good street play.

Convener

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