

Walchand College of Engineering, Sangli

(Government Aided Autonomous Institute)

AY 2023-24

Course Information

| | |
|---------------------|--|
| Programme | M. Tech. Civil (Environmental Engineering) |
| Class, Semester | Second Year M. Tech., Semester III |
| Course Code | 6EV645 |
| Course Name | Dissertation Phase I |
| Desired Requisites: | Core courses in Environmental Engineering |

| Teaching Scheme | | Examination Scheme (Marks) | | | |
|-----------------|-------------|----------------------------|-----|-----|-------|
| Lecture | - | LA1 | LA2 | ESE | Total |
| Tutorial | - | 100 | 0 | 0 | 100 |
| Practical | 6 Hrs./Week | Credits: 3 | | | |

Course Objectives

| | |
|---|--|
| 1 | Provide in-depth knowledge to tackle real world problems of societal concerns. |
| 2 | To impart knowledge for establishing objectives by carrying out extensive literature review on selected dissertation topics. |

Course Outcomes (CO) with Bloom's Taxonomy Level

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

| | | |
|-----|--|----------|
| CO1 | <i>Complete</i> detailed literature survey to understand research developments and set up research hypotheses. | Applying |
| CO2 | <i>Formulate</i> the objectives of the dissertation based on the scope of work in the area of study. | Creating |

Module Contents

The dissertation work will start in semester III, and should involve scientific research, design, collection, and analysis of data, determining solutions and must bring out the individual's contribution. Dissertation Phase-I will have presentation and report submission (synopsis). The presentation will include identification of the research problem based on the extensive literature review on the topic referring to latest literature available, defining objectives of the work, and the methodology to be adopted.

Phase-I is based on the efforts by the student for synopsis preparation. It shall be evaluated using the parameters extent of literature review, scope defined, objectives, fundamental concepts, quality of presentation, and interaction during presentation, effort/work done, quality of report and interaction with guide.

LA1 shall be conducted by Departmental Post-Graduate Committee (DPGC)

References

| | |
|---|--|
| 1 | National and International journals in Environmental Engineering |
| 2 | Journal of Indian water works association, |
| 3 | Journal of environmental science and engineering (NEERI) |
| 4 | Journal of environmental engineering (ASCE), |
| 5 | Water research, |
| 6 | Water science and technology, |
| 7 | Journal of Water supply: Research and technology-AQUA, |
| 8 | Journal of environmental management |
| 9 | Journal of waste management, |

| | |
|----|--|
| 10 | Water science and technology –Water supply, |
| 11 | Journal of Water Reuse and Desalination, |
| 12 | Journal of American water works association. |
| 13 | Building and Energy (Elsevier) |

| CO-PO Mapping | | | | | | |
|---------------|-------------------------|---|---|---|---|---|
| | Programme Outcomes (PO) | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 |
| CO1 | 3 | | | | | |
| CO2 | | | 3 | | | 1 |

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Walchand College of Engineering, Sangli

(Government Aided Autonomous Institute)

AY 2023-24

Course Information

| | |
|---------------------|--|
| Programme | M. Tech. Civil (Environmental Engineering) |
| Class, Semester | Second Year M. Tech., Semester III |
| Course Code | 6EV646 |
| Course Name | Dissertation Phase-II |
| Desired Requisites: | Dissertation Phase-I |

| Teaching Scheme | | Examination Scheme (Marks) | | | |
|-----------------|-------------|----------------------------|-----|-----|-------|
| Lecture | - | LA1 | LA2 | ESE | Total |
| Tutorial | - | 0 | 100 | 0 | 100 |
| Practical | 6 Hrs./Week | Credits: 3 | | | |

Course Objectives

| | |
|---|--|
| 1 | To analyze/experiment selected research topic further and review, classify and consolidate observations/results based on the detailed analytical/ experimental work. |
| 2 | Impart flexibility to the student to have increased control over his/ her learning. |

Course Outcomes (CO) with Bloom's Taxonomy Level

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

| | | |
|-----|---|----------|
| CO1 | <i>Formulate</i> the methodology to achieve the objectives of work. | Creating |
| CO2 | <i>Execute</i> the study through conduct of analytical/Experimental work to achieve the objectives. | Applying |

Module Contents

In this semester it is expected that the student has carried out substantial research work including exhaustive literature survey, formulation of the research problem, development/fabrication of experimental set-up (if any/required) and testing, and analysis of initial results thus obtained.

Phase-II is based on the progress made during the semester for the objectives defined in the synopsis and the report submitted by the students. It shall be evaluated through progress seminar(s) at the end of the semester. The parameters for evaluation include extent of work done, results and discussion/publication efforts, quality of presentation, quality of report, interaction during presentation and interaction with guide.

LA2 shall be conducted by Departmental Post-Graduate Committee (DPGC)

References

| | |
|---|--|
| 1 | Technical Reports of Professional societies. |
| 2 | International and national codes of Practices and Handbooks. |
| 3 | Internet sources and Distance Learning. |
| 4 | Published Ph.D. and M. Tech Thesis of Reputed Institutes. |

| CO-PO Mapping | | | | | | |
|---------------|-------------------------|---|---|---|---|---|
| | Programme Outcomes (PO) | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 |
| CO1 | 3 | | 2 | | | |
| CO2 | | | | 3 | | |

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Course Information

| | |
|----------------------------|--|
| Programme | M. Tech. Civil (Environmental Engineering) |
| Class, Semester | Second Year M. Tech., Semester III |
| Course Code | 6EV647 |
| Course Name | Dissertation Phase-III |
| Desired Requisites: | Dissertation Phase-II |

Teaching Scheme

Examination Scheme (Marks)

| Lecture | - | LA1 | LA2 | ESE | Total |
|-----------|-------------|-------------------|-----|-----|-------|
| Tutorial | - | 0 | 0 | 100 | 100 |
| Practical | 8 Hrs./Week | Credits: 4 | | | |

Course Objectives

- 1 To document the research work in the prescribed format and present it effectively.
- 2 Enhance student's learning through increased interaction with peers and colleagues.

Course Outcomes (CO) with Bloom's Taxonomy Level

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

| | | |
|------------|--|-------------------------------------|
| CO1 | <i>Analyze, interpret</i> and <i>critique</i> the findings of the study. | Applying Analyzing Evaluating |
| CO2 | <i>Defend</i> the outcomes of the dissertation through self-learning and <i>justify</i> the project work as per appropriate standards of documentation and presentation. | Evaluating |

Module Contents

Phase-III will have end semester presentation. End semester presentation will include the validation work and completion of nearly half the work defined for the dissertation. The literature review should continue to study the latest research material available in the chosen field. The external examiner should assess the work done by the individual student based on the detailed report on identification of topic for the work, the methodology adopted and presentation followed by viva-voce. The parameters for evaluation include results and discussion/publication efforts, quality of presentation, quality of report and interaction during presentation.

ESE shall be conducted at the end of semester by a duly constituted examination panel composed of Chairman, internal examiner (guide) and external examiner.

References

| | |
|---|--|
| 1 | Technical Reports of Professional societies. |
| 2 | International and national codes of Practices and Handbooks. |
| 3 | Internet sources and Distance Learning. |
| 4 | Published Ph.D. and M. Tech Thesis of Reputed Institutes. |

CO-PO Mapping

| | Programme Outcomes (PO) | | | | | |
|------------|-------------------------|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| CO1 | | | | 3 | 2 | |
| CO2 | | 3 | 3 | | 2 | |

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Course Information

| | |
|---------------------|---|
| Programme | M. Tech. Civil (Environmental Engineering) |
| Class, Semester | Second Year M. Tech., Semester III |
| Course Code | 6EV611 |
| Course Name | Professional Elective 4: Environmental Policies and Law |
| Desired Requisites: | - |

Teaching Scheme

Examination Scheme (Marks)

| Lecture | 2 Hrs./week | MSE | ISE | ESE | Total |
|----------|-------------|-----|-----|-----|-------|
| Tutorial | - | 30 | 20 | 50 | 100 |

Credits: 2

Course Objectives

| | |
|---|---|
| 1 | To acquire the skills needed for interpreting laws, policies and judicial decisions in a holistic perspective |
| 2 | To acquire the ability to evaluate the role of law and policy in conservation and management of natural resources and prevention of pollution |

Course Outcomes (CO) with Bloom's Taxonomy Level

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

| | | |
|-----|--|------------|
| CO1 | <i>Interpret</i> laws, policies and judicial decisions in a general perspective | Applying |
| CO2 | <i>Appraise</i> the role of law and policy in conservation and management of natural resources and prevention of pollution | Evaluating |

| Module | Module Contents | Hours |
|--------|--|-------|
| I | Environmental policies, organisational Structure and functions of department of environment and forest, Pollution control boards in centre and states | 5 |
| II | EPA Act 1986: Preliminary definitions, general powers of the central government, prevention, control, and abatement of environmental pollution | 5 |
| III | Water (prevention and control of pollution) act 1974, The environmental act 1986 and its amendments, Forest act 2006, Noise pollution rules 2022 | 5 |
| IV | Air pollution act 1987, Indian forest act 1950 and other amendments, Major legislations – USEPA 1969 to Clean water act 2022 | 5 |
| V | Municipal wastes (management and handling) rules 2016, Hazardous Wastes (Management and Handling) Rules 1989, Biomedical waste (management and handling) rules 2016. | 3 |
| VI | Case studies of landmark judgments, Critical evaluation of current environmental risk management policy | 3 |

Textbooks

| | |
|---|---|
| 1 | Kamala S. and Singh U.K. (eds.) (2008) Towards Legal Literacy: An Introduction to Law in India, Oxford, New Delhi. |
| 2 | Desai A. (2002) Environmental Jurisprudence, 2nd ed., Modern Law House, Allahabad. |
| 3 | Shyam Diwan and Armin Rosencranz, <i>Environmental Law and Policy in India- Cases, Materials and Statutes</i> (2nd ed., 2001) |

References

| | |
|---|---|
| 1 | Upadhyay S. and Upadhyay V. (2002) Hand Book on Environmental Law- Forest Laws, |
|---|---|

Syllabus of M. Tech. Programme, Civil (Environmental Engineering), AY 2023-24 Onwards

| | |
|---|---|
| | Wildlife Laws and the Environment; Vols. I, II and III, Lexis Nexis- Butterworths-India, New Delhi. |
| 2 | Sands P. (2002) Principles of International Environmental Law, 2nd edition, Cambridge. |
| 3 | Philippe Sands and Jacqueline Peel, <i>Principles of International Environmental Law</i> (4th ed., 2018). |

| Useful Links | |
|--------------|---|
| 1 | https://www.indiacode.nic.in/bitstream/123456789/4316/1/ep_act_1986.pdf |
| 2 | https://www.youtube.com/watch?v=aBkeecCKV64 |
| 3 | https://www.youtube.com/watch?v=aekqi7dmJwQ |
| 4 | https://www.youtube.com/watch?v=0i848T0EdYk |

| CO-PO Mapping | | | | | | |
|---------------|-------------------------|---|---|---|---|---|
| | Programme Outcomes (PO) | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 |
| CO1 | | | 2 | | | |
| CO2 | | | | | 2 | |

| Assessment |
|---|
| <p>The assessment is based on MSE, ISE and ESE.</p> <p>MSE shall be typically on modules 1 to 3.</p> <p>ISE shall be taken throughout the semester in the form of teacher's assessment. Mode of assessment can be field visit, assignments etc. and is expected to map at least one higher order PO.</p> <p>ESE shall be on all modules with around 40% weightage on modules 1 to 3 and 60% weightage on modules 4 to 6.</p> <p>For passing a theory course, Min. 40% marks in (MSE+ISE+ESE) are needed and Min. 40% marks in ESE are needed. (ESE shall be a separate head of passing)</p> |

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Course Information

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|---------------------|---|
| Programme | M. Tech. Civil (Environmental Engineering) |
| Class, Semester | Second Year M. Tech., Semester III |
| Course Code | 6EV612 |
| Course Name | Professional Elective 4: Advanced Numerical Methods |
| Desired Requisites: | All Courses in Mathematics for UG |

| Teaching Scheme | | Examination Scheme (Marks) | | | |
|-------------------|-------------|----------------------------|-----|-----|-------|
| Lecture | 2 Hrs./week | MSE | ISE | ESE | Total |
| Tutorial | - | 30 | 20 | 50 | 100 |
| Credits: 2 | | | | | |

Course Objectives

This course intends to introduce various theoretical and practical aspects associated with numerical methods for environmental applications. It would help students to provide solutions to generic versions of equations that arise in the Environmental Engineering discipline.

Course Outcomes (CO) with Bloom's Taxonomy Level

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

| | | |
|-----|--|----------|
| CO1 | <i>Solve</i> problems numerically related to non-linear equation, polynomials. | Applying |
| CO2 | <i>Solve</i> problems numerically related to linear and nonlinear algebraic equations. | Applying |
| CO3 | <i>Solve</i> problems related to numerical differentiation and integration. | Applying |

| Module | Module Contents | Hours |
|--------|---|-------|
| I | Introduction, roots of a non-linear equation and roots of a polynomial of n^{th} degree [incremental search method, method of successive approximations, Newton's method, bisection method, secant method, Müller's method, synthetic division, Bairstow's method and convergence study] | 4 |
| II | Solution of (non-homogeneous) linear algebraic equations, review of matrix algebra, Gauss elimination method, Cholesky's decomposition method, householder method, Gauss-Siedal iterative method | 5 |
| III | Solution of non-linear algebraic equations, method of successive approximation, Newton's method, modified Newton – Raphson method, secant method | 4 |
| IV | Eigen values and Eigen vectors, reduction of generalized Eigen value problem to the standard Eigen value problem, methods for obtaining Eigen values and Eigen vectors [polynomial method, vector iteration method, Mises power method, Jacobi method] | 5 |
| V | Time marching schemes for solution of problems in time domain, numerical integration (2 – D) [Newton – Cotes method, Gauss – Legendre method] | 4 |
| VI | Solution of ordinary and partial differential equations, Euler's method, Runge – Kutta method, finite difference method. | 4 |

Textbooks

| | |
|---|---|
| 1 | Chapra, S. C. and Canale R. P. (2003), "Numerical Methods for Engineers", Tata McGraw hill |
| 2 | Douglas Faires, J. and Richard Burden (2003), "Numerical Methods", Thomson |
| | Charles Prochaska, Louis Theodore (2018), "Introduction to Mathematical Methods for Environmental Engineers and Scientists" Wiley |

| | |
|---------------------|---|
| 3 | Rajasekaran, S.(1999) , “Numerical Methods in Science and Engineering”, S. Chand |
| References | |
| 1 | George F. Pinder (2018), “Numerical Methods for Solving Partial Differential Equations: A Comprehensive Introduction for Scientists and Engineers”, Wiley |
| 2 | E. Joseph Billo (2007), “Excel for Scientists and Engineers - Numerical Methods”, Wiley-Interscience |
| Useful Links | |
| 1 | https://nptel.ac.in/courses/111106101 |

| CO-PO Mapping | | | | | | |
|---------------|-------------------------|---|---|---|---|---|
| | Programme Outcomes (PO) | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 |
| CO1 | | | | 3 | | 1 |
| CO2 | | | | 3 | | 1 |
| CO3 | | | | 3 | | 1 |

| Assessment |
|---|
| <p>The assessment is based on MSE, ISE and ESE.</p> <p>MSE shall be typically on modules 1 to 3.</p> <p>ISE shall be taken throughout the semester in the form of teacher’s assessment. Mode of assessment can be field visit, assignments etc. and is expected to map at least one higher order PO.</p> <p>ESE shall be on all modules with around 40% weightage on modules 1 to 3 and 60% weightage on modules 4 to 6.</p> <p>For passing a theory course, Min. 40% marks in (MSE+ISE+ESE) are needed and Min. 40% marks in ESE are needed. (ESE shall be a separate head of passing)</p> |

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Course Information

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|---------------------|--|
| Programme | M. Tech. Civil (Environmental Engineering) |
| Class, Semester | Second Year M. Tech., Semester IV |
| Course Code | 6EV691 |
| Course Name | Dissertation Phase-IV |
| Desired Requisites: | Dissertation Phase-III |

| Teaching Scheme | | Examination Scheme (Marks) | | | |
|-----------------|--------------|----------------------------|-----|-----|-------|
| Lecture | - | LA1 | LA2 | ESE | Total |
| Tutorial | - | 100 | 0 | 0 | 100 |
| Practical | 10 Hrs./Week | Credits: 5 | | | |

Course Objectives

| | |
|---|--|
| 1 | To analyze/experiment selected research topic further and review, classify and consolidate observations/results based on the detailed analytical/ experimental work. |
| 2 | Impart flexibility to the student to have increased control over his/ her learning. |

Course Outcomes (CO) with Bloom's Taxonomy Level

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

| | | |
|-----|---|-------------------------------------|
| CO1 | <i>Execute</i> the study through conduct of analytical/Experimental work to achieve the remaining objectives. | Applying |
| CO2 | <i>Analyze, interpret</i> and <i>critique</i> the findings of the study. | Applying Analyzing Evaluating |
| CO3 | <i>Defend</i> the outcomes of the dissertation through self-learning | Evaluating |

Module Contents

In this semester it is expected that the student has carried out substantial research work through testing and analysis of results obtained through experimental/analytical study.

Phase-IV is based on the progress made during the semester-IV for the objectives defined in the synopsis and the report submitted by the students. It shall be evaluated through progress seminar(s) at the end of the semester. The parameters for evaluation include extent of work done, results and discussion/publication efforts, quality of presentation, quality of report, interaction during presentation and interaction with guide.

LA1 is based on the work done by the student during fourth semester. It shall be evaluated using the parameters extent of work done after phase III, quality of presentation, interaction during presentation and interaction with guide.

LA1 shall be conducted by Departmental Post-Graduate Committee (DPGC).

References

| | |
|---|--|
| 1 | Technical Reports of Professional societies. |
| 2 | International and national codes of Practices and Handbooks. |
| 3 | Internet sources and Distance Learning. |
| 4 | Published Ph.D. and M. Tech Thesis of Reputed Institutes. |

| CO-PO Mapping | | | | | | |
|---------------|-------------------------|---|---|---|---|---|
| | Programme Outcomes (PO) | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 |
| CO1 | | | | 3 | | |
| CO2 | | | | 3 | 2 | |
| CO3 | | 3 | 3 | | 2 | |

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Course Information

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|----------------------------|--|
| Programme | M. Tech. Civil (Environmental Engineering) |
| Class, Semester | Second Year M. Tech., Semester IV |
| Course Code | 6EV692 |
| Course Name | Dissertation Phase-V |
| Desired Requisites: | Dissertation Phase-IV |

Teaching Scheme

Examination Scheme (Marks)

| Lecture | - | LA1 | LA2 | ESE | Total |
|-----------|--------------|-------------------|-----|-----|-------|
| Tutorial | - | 0 | 100 | 0 | 100 |
| Practical | 10 Hrs./Week | Credits: 5 | | | |

Course Objectives

- 1 To analyze/experiment selected research topic further and review, classify and consolidate observations/results based on the detailed analytical/ experimental work.
- 2 Impart flexibility to the student to have increased control over his/ her learning.

Course Outcomes (CO) with Bloom's Taxonomy Level

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

| | | |
|------------|---|----------------------------------|
| CO1 | <i>Execute</i> the study through conduct of analytical/Experimental work to achieve the remaining objectives. | Applying |
| CO2 | <i>Analyze, interpret</i> and <i>critique</i> the findings of the study. | Apply Analyzing Evaluating |
| CO3 | <i>Defend</i> the outcomes of the dissertation through self-learning | Evaluating |

Module Contents

In this phase, it is expected that the student has completed the dissertation work in all respects and student is ready with the report comprising of final outcomes, conclusions etc.

Phase-V is based on the work done during the semester and the report submitted by the students. It shall be evaluated through progress seminar(s) at the end of the semester. The parameters for evaluation include extent of work done, results and discussion/publication efforts, quality of presentation, quality of report, interaction during presentation and interaction with guide.

The research paper based on the completed work through five phases should be drafted and submitted to respective guide or communicated to reputed journal or conference.

LA2 shall be conducted by Departmental Post-Graduate Committee (DPGC).

References

| | |
|---|--|
| 1 | Technical Reports of Professional societies. |
| 2 | International and national codes of Practices and Handbooks. |
| 3 | Internet sources and Distance Learning. |
| 4 | Published Ph.D. and M. Tech Thesis of Reputed Institutes. |

CO-PO Mapping

| | Programme Outcomes (PO) | | | | | |
|------------|-------------------------|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| CO1 | | | | 3 | | |
| CO2 | | | | 3 | 2 | |
| CO3 | | 3 | 3 | | 2 | |




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Course Information

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|---------------------|--|
| Programme | M. Tech. Civil (Environmental Engineering) |
| Class, Semester | Second Year M. Tech., Semester IV |
| Course Code | 6EV693 |
| Course Name | Dissertation Phase-VI |
| Desired Requisites: | Dissertation Phase-V |

| Teaching Scheme | | Examination Scheme (Marks) | | | |
|-----------------|--------------|----------------------------|-----|-----|-------|
| Lecture | - | LA1 | LA2 | ESE | Total |
| Tutorial | - | 0 | 0 | 100 | 100 |
| Practical | 12 Hrs./Week | Credits: 6 | | | |

Course Objectives

- 1 To document the research work in the prescribed format and present it effectively.
- 2 Enhance student's learning through increased interaction with peers and colleagues.

Course Outcomes (CO) with Bloom's Taxonomy Level

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

| | | |
|-----|--|-------------------------------------|
| CO1 | <i>Analyze, interpret</i> and <i>critique</i> the findings of the study. | Applying Analyzing Evaluating |
| CO2 | <i>Defend</i> the outcomes of the dissertation through self-learning and <i>justify</i> the project work as per appropriate standards of documentation and presentation. | Evaluating |

Module Contents

Phase-VI will have end semester presentation. End semester presentation will include the validation work and completion of all if the work defined for the dissertation. The external examiner should assess the work done by the individual student based on the detailed report on identification of topic for the work, the methodology adopted, results and discussions, findings and conclusions of the study and presentation followed by viva-voce. The parameters for evaluation include results and discussion/publication efforts, quality of presentation, quality of report and interaction during presentation.

ESE shall be conducted at the end of semester by a duly constituted examination panel composed of Chairman, internal examiner (guide) and external examiner.

References

| | |
|---|--|
| 1 | Technical Reports of Professional societies. |
| 2 | International and national codes of Practices and Handbooks. |
| 3 | Internet sources and Distance Learning. |
| 4 | Published Ph.D. and M. Tech Thesis of Reputed Institutes. |

| CO-PO Mapping | | | | | | |
|---------------|-------------------------|---|---|---|---|---|
| | Programme Outcomes (PO) | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 |
| CO1 | | | | 3 | 2 | |
| CO2 | | 3 | 3 | | 2 | |

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Course Information

| | |
|----------------------------|--|
| Programme | M. Tech. Civil (Environmental Engineering) |
| Class, Semester | Second Year M. Tech., Semester IV |
| Course Code | 6EV671 |
| Course Name | Internship |
| Desired Requisites: | Courses taught in Semesters I and II |

Teaching Scheme

Examination Scheme (Marks)

| Lecture | - | LA1 | LA2 | ESE | Total |
|-------------|------------|-------------------|-----|-----|-------|
| Interaction | 1 Hr./Week | 0 | 0 | 100 | 100 |
| Practical | - | Credits: 6 | | | |

Course Objectives

- 1 To expose the students to real life environmental engineering problems encountered in industry/society.
- 2 To provide an opportunity to work in collaborative and multidisciplinary environment.

Course Outcomes (CO) with Bloom's Taxonomy Level

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

| | | |
|------------|--|---------------|
| CO1 | <i>Perceive</i> knowledge of group dynamics and contribute to multidisciplinary work. | Understanding |
| CO2 | <i>Demonstrate</i> knowledge to solve societal problems and <i>apply</i> it for efficient management of projects independently and in teams. | Applying |
| CO3 | <i>Communicate</i> with industry/society regarding environmental engineering activities effectively and <i>comprehend</i> and write effective reports. | Understanding |
| CO4 | <i>Demonstrate</i> ethical behaviour with professional code of conduct and contribute to sustainable development of society. | Applying |

Module Contents

The objective of this training is to expose the students to industry environment and practices. Students are sent to leading Environmental Engineering organizations/Research laboratories/Design Consultancy organizations to undergo a rigorous training for a minimum period of one month during summer term/vacation.

CO-PO Mapping

| | Programme Outcomes (PO) | | | | | |
|------------|-------------------------|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| CO1 | | | | | 2 | |
| CO2 | | | | 2 | | |
| CO3 | | 2 | | | | |
| CO4 | | | | | 2 | |

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