

Noorul Islam Centre for Higher Education

(Deemed to be University u/s 3 of the UGC Act 1956)

Kumaracoil, Thuckalay, Kanyakumari District - 629 180

Accredited by NAAC with 'A' Grade

CV25 ME STRUCTURAL ENGINEERING



Student Performance and Learning Outcomes

CV25 ME STRUCTURAL ENGINEERING

| Programme Outcome - POs | |
|-------------------------|---|
| PO-A | Graduates of the program will be able to demonstrate in-depth knowledge of Structural Engineering discipline and build capability to apply that knowledge to real problems. |
| PO-B | b. Program graduates will gain knowledge and skill in integrating Structural engineering concepts across multiple disciplines. |
| PO-C | c. Graduates will have the ability to employ technical knowledge and leadership skills to Structural Engineering research and consultancy problems.. |
| PO-D | d. Graduates of the Structural Engineering program will demonstrate the ability to carry out original and useful research in key areas of Structural Engineering. |
| PO-E | e. Program graduates will be able to identify and analyze the impact of Structural Engineering in development project and find a suitable solution from number of alternatives |
| PO-F | f. Graduates of the program will develop skills to communicate technical values of Structural Engineering research with the public, learners, practitioners and other community members of concern. |
| PO-G | g. Program graduates will develop confidence in Structural analysis and management with high ethical value towards social, environmental and economic issues. |
| PO-H | h. Graduates will develop enthusiasm and confidence to pursue lifelong learning for professional advancement. |
| PO-I | i. Program graduates will develop the spirit of working in team for common objectives. |
| PO-J | j. Graduates of the program will develop interest to pursue higher studies and research |

| Programme Specific Outcomes - PSOs | |
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| PSO1 | Graduates Shall have an ability to analyze and solve problems related to civil engineering using mathematics, Science and fundamental principles of engineering. |
| PSO2 | Graduate shall have an ability to analyze, design, construct, maintain and rehabilitate the infrastructural projects, using the knowledge of subjects related to planning, construction, structural, geotechnical, transportation, environment and water resource engineering as well as project management. |
| PSO3 | Graduate shall have an ability to apply gained knowledge to choose from the innovative career paths, to be an entrepreneur, and a zest for higher studies. |
| PSO4 | Graduates shall have an ability to interact and work seamlessly in teams. |

| Sl.No | Subject Code | Subject Name |
|--------------------|--------------|--|
| SEMESTER II | | |
| 1. | CV 25C8 | Advanced Concrete Technology (Elective II) |
| 2. | CV 2505 | Earthquake Resistant Design of Structures |
| 3. | CV 2509 | Smart Structures and Smart Materials |
| 4. | CV2506 | Stability of Structures |
| 5. | CV2507 | Finite Element Analysis |
| 6. | CV2508 | Experimental Techniques & Instrumentation |
| 7. | CV2572 | Advanced Structural Engineering Laboratory |
| SEMESTER IV | | |
| 8. | CV25P5 | PROJECT WORK –PHASE II |

| CV 25C8 Advanced Concrete Technology | |
|--------------------------------------|--|
| CO1 | Students will be able to understand The various requirements of cement, aggregates and water for making concrete |
| CO2 | The effect of admixtures on properties of concrete |
| CO3 | The concept and procedure of mix design as per IS method |
| CO4 | The properties of concrete at fresh and hardened state |
| CO5 | The importance and application of special concretes. |

| CV 2505 Earthquake Resistant Design of Structures | |
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| CO1 | Basic knowledge of Engineering seismology. |
| CO2 | In depth knowledge and critical understanding of the theory and principles of the dynamic response of the structures and the seismic design. |
| CO3 | Knowledge and understanding of the response spectrum analysis techniques. |
| CO4 | Knowledge and understanding of lateral load analysis and techniques. |
| CO5 | Knowledge and skills to apply the performance based design and base isolation system. |

| CV 2509 Smart Structures and Smart Materials | |
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| CO1 | Use of shape memory alloys in engineering application |
| CO2 | Explain the characteristics of Bio and smart materials |
| CO3 | Use of smart materials as sensors |
| CO4 | Use of smart materials as sensors, actuator |
| CO5 | Advances in smart structures materials |

| CV2506- STABILITY OF STRUCTURES | |
|---------------------------------|--|
| CO1 | To study the concept of buckling of columns and their analysis for various boundary conditions |
| CO2 | To analysis of beam, column and frames by moment distribution, slope deflection and stiffness method |
| CO3 | To study the torsional and lateral buckling of simply supported beams and cantilever beams. |
| CO4 | To analysis the equilibrium and energy approach of plates |

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| CO5 | To study the inelastic buckling of plates |
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| CV2507-Finite Element Analysis | |
|--------------------------------|---|
| CO1 | Summarize the basics of finite element formulation. |
| CO2 | Apply finite element formulations to solve one dimensional Problems. |
| CO3 | Apply finite element formulations to solve two dimensional scalar Problems. |
| CO4 | Apply finite element method to solve two dimensional Vector problems. |
| CO5 | Apply finite element method to solve problems on iso parametric element and dynamic Problems. |

| Sub CodeCV2508 – Sub Name: Experimental Techniques & Instrumentation | |
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| CO1 | At the end of this course students will know about measurement of strain |
| CO2 | At the end of this course students will know about measurement of vibrations |
| CO3 | At the end of this course students will know about measurement of wind blow. |
| CO4 | They will be able to analyze the structure by non-destructive model analysis. |
| CO5 | They will be able to analyze the structure by non-destructive testing methods |

| Sub CodeCV2572 – Sub Name Advanced Structural Engineering Laboratory | |
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| CO1 | On completion of this laboratory course students will be able to cast and test RC beams for strength and deformation behaviour. |
| CO2 | They will be able to test dynamic testing on steel beams, static cyclic load testing of RC frames and non-destruction testing on concrete. |
| CO3 | The concept and procedure of mix design as per IS method |
| CO4 | The properties of concrete at fresh and hardened state |
| CO5 | The importance and application of special concretes |

| CV25P5- PROJECT WORK –PHASE II | |
|--------------------------------|--|
| CO1 | Demonstrate a sound technical knowledge of their selected project topic. |
| CO2 | Undertake problem identification, formulation and solution. |
| CO3 | Design engineering solutions to complex problems utilising a systems approach. |
| CO4 | Conduct an engineering project |
| CO5 | Demonstrate the knowledge, skills and attitudes of a professional engineer. |