



# UTKAL INSTITUTE OF ENGINEERING & TECHNOLOGY

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| <b>DISCIPLINE:</b><br>CIVIL  | <b>SEMESTER:</b><br>6TH Sem                                  | <b>NAME OF THE TEACHING FACULTY:</b> Er.Rehebari  |                |                |
| <b>SUBJECT:</b><br><b>Th 3. ADVANCED<br/>CONSTRUCTION<br/>TECHNIQUES &amp;<br/>EQUIPMENT</b> | No of Days/Per<br>week class<br>allotted: 4 Class<br>P/W(60) | Semester From Date:16/01/2024<br><br>To Date:24/04/2024<br><br>No. Of Weeks: 15   |                |                |
| <b>WEEK</b>  | <b>CLASS DAY</b>   | <b>THEORY TOPICS</b>  | <b>REMARKS</b> |                |
| 1 <sup>st</sup>  | 1 <sup>st</sup>  | Advanced construction materials , Fibers and Plastics   | Date           | Dean/Principal |
|  | 2 <sup>nd</sup>  | Introduction to reinforced concrete, R.C. sections their behavior, grades of concrete and steel. Permissible stresses, assumption in W.S.M. |                |                |
|  | 3 <sup>rd</sup>  | Types of fibers- Steel, Carbon, glass fibers  |                |                |
|  | 4 <sup>th</sup>  | Use of fibers as construction material, properties of Fibers.   |                |                |
| 2nd  | 1 <sup>st</sup>  | HDPE, FRP, GRP etc.   |                |                |
|  | 2 <sup>nd</sup>  | Colored plastic sheets. Use of plastic as construction material.  |                |                |
|  | 3 <sup>rd</sup>  | Artificial Timbers – Properties and uses of artificial timber   |                |                |
|  | 4 <sup>th</sup>  | Types of artificial timber available in market, strength of artificial timber.  |                |                |
|  | 1 <sup>st</sup>  | Miscellaneous materials – Properties and uses of acoustics materials,   |                |                |

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| 3 <sup>rd</sup> | 2 <sup>nd</sup> | wall claddings, plaster boards, micro-silica, artificial sand, bonding agents, adhesives etc. |  |  |
|                 | 3 <sup>rd</sup> | Prefabrication :Introduction, necessity and scope of prefabrication of buildings,             |  |  |
|                 | 4 <sup>th</sup> | History of prefabrication, current uses of prefabrication                                     |  |  |
| 4 <sup>th</sup> | 1 <sup>st</sup> | Types of prefabricated systems, classification of prefabrication                              |  |  |
|                 | 2 <sup>nd</sup> | Advantages and disadvantages of prefabrication  |  |  |
|                 | 3 <sup>rd</sup> | The theory and process of prefabrication,   |  |  |
|                 | 4 <sup>th</sup> | Design principle of prefabricated systems,  |  |  |
| 5 <sup>th</sup> | 1 <sup>st</sup> | Types of prefabricated elements, modular coordination   |  |  |
|                 | 2 <sup>nd</sup> | Indian standard recommendation for modular planning.  |  |  |
|                 | 3 <sup>rd</sup> | Earthquake Resistant Construction 3.1 Building Configuration                                  |  |  |
|                 | 4 <sup>th</sup> | Lateral Load resisting structures   |  |  |
| 6 <sup>th</sup> | 1 <sup>st</sup> | Building characteristics  |  |  |
|                 | 2 <sup>nd</sup> | Effect of structural irregularities-vertical irregularities,                                  |  |  |
|                 | 3 <sup>rd</sup> | plan configuration problems.  |  |  |
|                 | 4 <sup>th</sup> | Safety consideration during additional construction and alteration of existing Buildings.     |  |  |
|                 | 1 <sup>st</sup> | Additional strengthening measures in masonry building-corner reinforcement,                   |  |  |

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| 7th  | 2 <sup>nd</sup> | Lintel band, sill band, plinth band, roof band, gable band etc.  |  |  |
|      | 3 <sup>rd</sup> | Retrofitting of Structures:Seismic retrofitting of reinforced concrete buildings                             |  |  |
|      | 4 <sup>th</sup> | Seismic retrofitting of reinforced concrete buildings  |  |  |
| 8th  | 1 <sup>st</sup> | Sources of weakness in RC frame building   |  |  |
|      | 2 <sup>nd</sup> | Sources of weakness in RC frame building   |  |  |
|      | 3 <sup>rd</sup> | Classification of retrofitting techniques and their uses   |  |  |
|      | 4 <sup>th</sup> | Classification of retrofitting techniques and their uses   |  |  |
| 9th  | 1 <sup>st</sup> | Classification of retrofitting techniques and their uses   |  |  |
|      | 2 <sup>nd</sup> | REVISSION CLASS  |  |  |
|      | 3 <sup>rd</sup> | Building Services : Cold Water Distribution in high rise building, lay out of installation                   |  |  |
|      | 4 <sup>th</sup> | Hot water supply – General principles for central plants- layout   |  |  |
| 10th | 1 <sup>st</sup> | Sanitation –soil and waste water installation in high rise buildings   |  |  |
|      | 2 <sup>nd</sup> | Electrical services – i) requirements in high rise buildings ii) Layout of wiring - types of wiring          |  |  |
|      | 3 <sup>rd</sup> | iii) Fuses and their types iv)Earthing and their uses  |  |  |
|      | 4 <sup>th</sup> | Lighting – Requirement of lighting, Measurement of light intensity   |  |  |
|      | 1 <sup>st</sup> | Ventilation - Methods of ventilation (Natural and artificial Systems of ventilation) problems on ventilation |  |  |

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| 11th | 2 <sup>nd</sup> | Mechanical Services- Lifts, Escalator, Elevators – types and uses                            |  |  |
|      | 3 <sup>rd</sup> | Construction and earth moving equipments – Planning and selection of construction equipments |  |  |
|      | 4 <sup>th</sup> | Study on earth moving equipments like drag line,   |  |  |
| 12th | 1 <sup>st</sup> | Study on earth moving equipments like tractor  |  |  |
|      | 2 <sup>nd</sup> | Study on earth moving equipments like bulldozer  |  |  |
|      | 3 <sup>rd</sup> | Study on earth moving equipments like , Power shovel   |  |  |
|      | 4 <sup>th</sup> | Study and uses of compacting equipments like tamping rollers,Smooth wheel rollers            |  |  |
| 13th | 1 <sup>st</sup> | Study and uses of compacting equipments like Pneumatic tired rollers                         |  |  |
|      | 2 <sup>nd</sup> | Study and uses of compacting equipments like vibrating compactors                            |  |  |
|      | 3 <sup>rd</sup> | owning and operating cost – problems   |  |  |
|      | 4 <sup>th</sup> | owning and operating cost – problems   |  |  |
| 14th | 1 <sup>st</sup> | Soil reinforcing techniques :Necessity of soil reinforcing.                                  |  |  |
|      | 2 <sup>nd</sup> | Use wire mesh and geo-synthetics.  |  |  |
|      | 3 <sup>rd</sup> | ASSIGNMENT   |  |  |
|      | 4 <sup>th</sup> | Use wire mesh and geo-   |  |  |
| 15th | 1 <sup>st</sup> | Strengthening of embankments   |  |  |
|      | 2 <sup>nd</sup> | Slope stabilization in cutting and embankments by soil reinforcing techniques                |  |  |
|      | 3 <sup>rd</sup> | Slope stabilization in cutting and embankments by soil reinforcing techniques                |  |  |
|      | 4 <sup>th</sup> | DOUBT CLEAR CLASS  |  |  |

Tejaswani Das

**HOD**

Chittaranjan Parida

**DEAN**

Law

**PRINCIPAL**