

Civil and Infrastructure Engineering

Semester VII						
Sr. No	Course Code	Course Name	L	T	P	C
1	CE 401	<u>Construction Engineering and Management</u>	2	1	0	6
2	CE 403	<u>Civil and Infrastructure Engineering Design</u>	1	0	1	3
3		Institute Elective-V	2	1	0	6
4		HSS Basket 1 or 2 (Elective-II)	2	1	0	6
5	CE 402	BTP-I/Program Elective-I	0	0	6	6
		Total Credits				30

Civil and Infrastructure Engineering

1	Title of the course (L-T-P-C)	Construction Engineering and Management 3-0-0-6
2	Pre-requisite courses(s)	Nil
3	Course content	<p>Fundamentals of construction project management: Introduction, Project Initiation, and Planning, Time Value of Money, Investment Analysis, Cost-Benefit Analysis; Construction schedule management: Work Breakdown Structures, Development of project activity networks, Precedence Diagram Method, Critical Path Method (CPM), Program Evaluation and Review Technique (PERT), Line Balance Methods in scheduling.</p> <p>Construction material management: Resources in construction, Resource levelling, the crashing of project schedules, earned value analysis.</p> <p>Construction Quality and safety: Safety and occupational hazards in construction, Fundamentals of quality control in construction, Safety in construction - Cost of Accidents - Safety norms - Safety aids.</p> <p>Introduction to Construction Contracts: Estimation, Tenders & Contracts - EOI- Prequalification - Types of Contracts - Terminology used, fundamentals of delay analysis and claims, Construction Finances – decision making.</p> <p>Advances in construction management: Introduction to Building Information Modelling (BIM), Lean construction, and Integrated Project Delivery in construction</p>
4	Texts/References	<p>Reading:</p> <ol style="list-style-type: none"> 1. Kumar Neeraj Jha, “Construction Project Management: theory and practice” Pearson Education India; 2nd edition, 2015. 2. F. Lawrence Bennett, “The Management of Construction: A Project Lifecycle Approach”, Routledge; 1st edition, 2016. 3. S. Choudhury “Project Management”, McGraw Hill Education, 2017. <p>References:</p> <ol style="list-style-type: none"> 1. Riggs, James L., David D. Bedworth, and Sabah U. Randhawa., “Engineering Economics”, McGraw Hill Education; 4th edition, 2004. 2. Garold D. Oberlender, “Project management for engineering and construction”, McGraw Hill Education; Second edition, 2014. 3. Chitkara, K. K. “Construction Project Management”, McGraw-Hill; Forth Edition, 2019.

Civil and Infrastructure Engineering

1	Title of the course (L-T-P-C)	Civil and Infrastructure Engineering Design (1-0-1-3)
2	Pre-requisite courses(s)	Nil
3	Course content	<ol style="list-style-type: none"> 1. Design of Shallow Foundation 2. Manual Design of G+2 Storey Building 3. Design of Deep Foundation 4. Design Rigid Pavement 5. Design of Flexible Pavement 6. Design of Concrete Gravity Dam 7. Design of a Retaining Wall 8. Design of G+10 Storey Building 9. Design of Beam Bridge 10. Design of a Sewage Treatment Plant
4	Texts/References	<p>References:</p> <ol style="list-style-type: none"> 1. Shah, V. L. and Karve, S. R. (2010). Illustrated Design of Reinforced Concrete Buildings, 9th Ed., Structures Publications, Pune. 2. Varghese, P. C. (2009). Design of Reinforced Concrete Foundations, 1st Ed., Prentice Hall India Learning Private Limited, New Delhi. 3. Huang, Y.H. (2008) Pavement Analysis and Design, Pearson Prentice Hall, New Jersey, USA. 4. Yoder, E.J. and Witzak. M.W. (2012) Principles of Pavement Design, Second Edition, John Wiley and Sons, New York, USA. 5. Victor, D. J. (2019). Essentials Of Bridge Engineering, Oxford& IBH Publishing Co. Pvt. Ltd., 6th Ed., New Delhi. 6. A Water Resources Technical Publication: Design of Gravity Dams (2011), U.S. Department of the Interior, Books Express Publishing, USA. 7. Metcalf and Eddy (2002). Wastewater Engineering, Treatment, Disposal and Reuse, 4th Ed., Tata McGraw-Hill, New Delhi.