

13. Courses of Study and Scheme of Assessment

BE CIVIL ENGINEERING

(2015 REGULATIONS)
(Minimum credits to be earned: 185)

Code No.	Course	Hours / week			Credits	Maximum marks				
		Lecture	Tutorial	Practical		CA	FE	Total	CAT	
SEMESTER I										
15C101	Calculus and its Applications	3	2	0	4	50	50	100	BS	
15C102	Physics	3	0	0	3	50	50	100	BS	
15C103	Chemistry	3	0	0	3	50	50	100	BS	
15C104	English Language Proficiency	2	2	0	3	50	50	100	HS	
15C105	Problem Solving and C Programming	2	2	0	3	50	50	100	ES	
15C106	Engineering Geology	3	0	0	3	50	50	100	ES	
15C110	Engineering Graphics	1	0	4	3	100	-	100	ES	
15C111	Physics Laboratory I	0	0	2	1	100	-	100	BS	
15C112	Chemistry Laboratory I	0	0	2	1	100	-	100	BS	
15C214	Personality and Character Development	0	0	Refer Sem 2 and footnote						MC
Total 31 hrs		17	6	8	24	600	300	900		
SEMESTER II										
15C201	Complex Variables and Transforms	3	2	0	4	50	50	100	BS	
15C202	Engineering Mechanics	3	2	0	4	50	50	100	ES	
15C203	Civil Engineering Materials and Construction I	3	0	0	3	50	50	100	ES	
15C204	Applied Physics	3	0	0	3	50	50	100	BS	
15C205	Chemistry of Engineering Materials	3	0	0	3	50	50	100	BS	
15C___	Language Elective	3	0	0	3	50	50	100	HS	
15C210	Engineering Practices	0	0	2	1	100	-	100	ES	
15C211	Physics Laboratory II	0	0	2	1	100	-	100	BS	
15C212	Chemistry Laboratory II	0	0	2	1	100	-	100	BS	
15C214	Personality and Character Development	0	0	**	Grade	-	-	-	MC	
Total 28 hrs		18	4	6	23	600	300	900		

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** - Total 40 hrs in semesters I & II put together.

Grade: Completed / Not Completed

BE CIVIL ENGINEERING**(2015 REGULATIONS)**

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		Lecture	Tutorial	Practical	Credits	CA	FE	Total	CAT
SEMESTER II – Summer Term[€]									
15C215	Professional Skills	6	0	9	2	100	-	100	EEC
15C216	In-Plant Training and Technical Seminar	6	0	9	2	100	-	100	EEC
Total 30 hrs		12	0	18	4	200		200	

CA - Continuous Assessment

FE - Final Examination

€ - These courses will be conducted prior to the commencement of the third semester for a period of 4 weeks during summer term.

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Code No.	Course	Hours / week				Maximum marks			
		Lecture	Tutorial	Practical	Credits	CA	FE	Total	CAT
SEMESTER III									
15C301	Numerical Methods	2	2	0	3	50	50	100	BS
15C302	Mechanics of Solids I	3	2	0	4	50	50	100	ES
15C303	Civil Engineering Materials and Construction II	3	0	0	3	50	50	100	PC
15C304	Mechanics of Fluids	2	2	0	3	50	50	100	ES
15C305	Surveying	3	0	0	3	50	50	100	PC
15C070	Economics for Engineers	3	0	0	3	50	50	100	HS
15C310	Survey Practice I	0	0	4	2	100	-	100	PC
15C311	Strength of Materials Laboratory	0	0	4	2	100	-	100	ES
Total 30 hrs		16	6	8	23	500	300	800	
SEMESTER IV									
15C401	Probability and Statistics	2	2	0	3	50	50	100	BS
15C402	Mechanics of Solids II	3	2	0	4	50	50	100	PC
15C403	Hydraulics and Hydraulic Machinery	3	0	0	3	50	50	100	ES
15C404	Basic Structural Steel Design	2	2	0	3	50	50	100	PC
15C405	Concrete Technology	3	0	0	3	50	50	100	PC
15_____	Open Elective I *	3	0	0	3	50	50	100	OE
15C410	Survey Practice II	0	0	4	2	100	-	100	PC
15C411	Hydraulic and Hydraulic Machinery Laboratory	0	0	4	2	100	-	100	ES
Total 30 hrs		16	6	8	23	500	300	800	

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* – LTPC for open electives can be either 3 0 0 3 or 2 2 0 3.

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Code No.	Course	Hours / week				Maximum marks			
		Lecture	Tutorial	Practical	Credits	CA	FE	Total	CAT
SEMESTER V									
15C501	Structural Analysis I	3	2	0	4	50	50	100	PC
15C502	Design of RC Elements	2	2	0	3	50	50	100	PC
15C503	Geotechnical Engineering I	3	0	0	3	50	50	100	PC
15C504	Highway and Railway Engineering	3	0	0	3	50	50	100	PC
15C505	Environmental Engineering I	3	0	0	3	50	50	100	PC
15____	Open Elective II*	3	0	0	3	50	50	100	OE
15C510	Concrete Technology & Highway Laboratory	0	0	4	2	100	-	100	PC
15C511	Geotechnical Engineering Laboratory	0	0	4	2	100	-	100	PC
15C520	Innovation Practices	0	0	4	2	100	-	100	EEC
Total 33 hrs		17	4	12	25	600	300	900	
SEMESTER VI									
15C601	Structural Analysis II	3	2	0	4	50	50	100	PC
15C602	Design of Concrete Structures	3	0	0	3	50	50	100	PC
15C603	Design of Steel Structures	2	2	0	3	50	50	100	PC
15C604	Environmental Engineering II	3	0	0	3	50	50	100	PC
15C605	Geotechnical Engineering II	3	0	0	3	50	50	100	PC
15____	Open Elective III*	3	0	0	3	50	50	100	OE
15C610	Environmental Engineering Laboratory	0	0	4	2	100	-	100	PC
15C611	Building Planning and Drafting Laboratory	0	0	4	2	100	-	100	PC
15C620	Industrial Visit	0	0	2	1	100	-	100	EEC
Total 31 hrs		17	4	10	24	600	300	900	

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Code No.	Course	Hours / week				Maximum marks			
		Lecture	Tutorial	Practical	Credits	CA	FE	Total	CAT
SEMESTER VII									
15C701	Construction Project Management	3	0	0	3	50	50	100	PC
15C702	Quantity Surveying and Valuation	3	2	0	4	50	50	100	PC
15C___	Professional Elective I	3	0	0	3	50	50	100	PE
15C___	Professional Elective II	3	0	0	3	50	50	100	PE
15C___	Professional Elective III	3	0	0	3	50	50	100	PE
15C___	Professional Elective IV	3	0	0	3	50	50	100	PE
15C710	Design and Drawing	0	0	4	2	100	-	100	EEC
15C711	Computer Analysis and Design Laboratory	0	0	4	2	100	-	100	EEC
15C720	Project Work I	0	0	4	2	100	-	100	EEC
Total 32 hrs		18	2	12	25	600	300	900	
SEMESTER VIII									
15C___	Professional Elective V	3	0	0	3	50	50	100	PE
15C___	Professional Elective VI	3	0	0	3	50	50	100	PE
15C820	Project Work II	0	0	16	8	50	50	100	EEC
Total 22 hrs		6	0	16	14	150	150	300	

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LANGUAGE ELECTIVES

15C080	Communication Skills for Engineers
15C081	Basic German
15C082	Basic French
15C083	Basic Japanese

OPEN ELECTIVES

(Students can opt for all open electives from single stream or several streams)

MATHEMATICS

15OH01	Advanced Linear Algebra
15OH02	Algebraic Structures
15OH03	Calculus of Variations and Tensor Analysis
15OH04	Graph Theory and its Applications
15OH05	Mathematical Finance
15OH06	Mathematical Modeling and Simulation
15OH07	Number Theory for Computing
15OH08	Operations Research
15OH09	Reliability and Quality Control
15OH10	Soft Computing
15OH11	Stochastic Models

PHYSICS

15OH20	Analytical Techniques for Materials Characterization
15OH21	Laser Technology
15OH22	Micro Electromechanical Systems
15OH23	Nanomaterials and Applications
15OH24	Physics for Solar PV Systems and Solid-State Lighting Systems
15OH25	Sensors for Engineering Applications
15OH26	Thin Film Technology
15OH27	Nonlinear Science and Engineering Applications
15OH28	Nonlinear Fiber Optics
15OH29	Chaotronics

CHEMISTRY

15CH35	Corrosion for Civil Engineering
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COMPUTER APPLICATIONS

15OH46	Computer Graphics and Virtual Reality
15OH47	Data and File Structures
15OH48	Database Management System
15OH49	High Performance Computing
15OH50	Mainframe Systems
15OH51	Mobile Application Development
15OH52	Multicore Programming
15OH53	Object Oriented Programming
15OH54	Programming in Python
15OH55	Responsive Web Design
15OH56	Social Web Mining
15OH57	Software Engineering
15OH58	Java Programming
15OH59	Geographic Information System
15OH60	Programming for Robotics

HUMANITIES

15OH61	An Introduction to Indian Constitution
15OH62	Entrepreneurship
15OH63	Human Resource Management
15OH64	Industrial Psychology

15OH65	Principles of Management
15OH66	Business Statistics
15OH67	Disaster Management
15OH68	Financial and Managerial Accounting
15OH69	Marketing Management
15OH70	Defence Practices and Disaster Management

ENGLISH

15OH75	English and Soft Skills for Employability
15OH76	English for Competitive Examinations
15OH77	German Language – International Level A1.1
15OH78	German Language – International Level A1.2

APPLIED MATHEMATICS AND COMPUTATIONAL SCIENCES

15OH81	Data Structures and Algorithms
15OH82	Optimization Techniques
15OH83	Data Science
15OH84	Data Visualization
15OH85	Artificial Intelligence
15OH86	Pervasive Computing
15OH87	Parallel and Distributed Computing
15OH88	Cyber Security
15OH89	Randomized Algorithms
15OH90	Approximation Algorithms
15OH91	Network Science
15OH92	Applied Stochastic Processes
15OH93	Modelling and Simulation
15OH94	Graph Algorithms

OPEN ELECTIVES OFFERED BY ENGINEERING DEPARTMENTS

15MH02	Total Quality Management	(Mechanical Engineering)
15PH04	Financial Management and Accounting	(Production Engineering)

PROFESSIONAL ELECTIVES

STRUCTURES

15C001	Advanced Reinforced Concrete Design
15C002	Advanced Steel Design
15C003	Basics of Structural Dynamics and Earthquake Resistant Design
15C004	Bridge Engineering
15C005	Building Science
15C006	Disaster Management and Mitigation
15C007	Distress Monitoring and Rehabilitation of Structures
15C008	Industrial Structures
15C009	Prestressed Concrete Structures
15C010	Finite Element Analysis

HYDROLOGY AND WATER RESOURCES

15C015	Ground Water Engineering
15C016	Hydrology
15C017	Water Resource Engineering

15C018 Irrigation Engineering

ENVIRONMENTAL ENGINEERING

15C021 Environmental Impact Assessment

15C022 Industrial Waste Management

15C023 Solid Waste Management

SOIL MECHANICS AND FOUNDATION ENGINEERING

15C026 Geosynthetics in Civil Engineering

15C027 Ground Improvement Techniques

15C028 Pavement Engineering

URBAN SYSTEM ENGINEERING

15C031 Airport, Docks and Harbour Engineering

15C032 Housing Planning & Management

15C033 Traffic Engineering Management

SURVEY AND REMOTE SENSING

15C036 Cartography

15C037 Geographic Information System

15C038 Remote Sensing Techniques and Applications

ONE CREDIT COURSES

OFFERED BY THE DEPARTMENT

15CF01 Limit State Design of Steel Structures

15CF02 Symbolic and Numerical Computation

15CF03 Safety in Construction

OFFERED BY HUMANITIES

15OF01 Export-Import Management

15OF02 Insurance and Risk Management

15OF03 Values and Ethics at Work Place

15OF04 Development of Industrialisation

15OF05 Creativity and Social Enterprise

15OF06 Social and Psychological Well Being

15OF13 Security Analysis and Portfolio Management

15OF14 Implementation of Quality Management System

15OF15 Financial Management

15OF16 Personality Development Through Transactional Analysis

OFFERED BY THE DEPARTMENT OF ENGLISH

15OF10 Corporate Communication

15OF11 Interpersonal and Organizational Communication

15OF12 Human Values Through Literature

OFFERED BY THE DEPARTMENT OF MATHEMATICS

15OF21 Principles of Business Analytics

SUMMARY OF CREDIT DISTRIBUTION

B.E. CIVIL ENGINEERING												
S. No	Course Work subject Area	Credits Per Semester								Total Credit	Credit Range	
		I	II	III	IV	V	VI	VII	VIII		Min	Max
1	HS	3	3	3						9	9	18
2	BS	12	12	3	3					30	27	36
3	ES	9	8	9	5					31	27	36
4	PC			8	12	20	20	7		67	54	72
5	PE							12	6	18	18	27
6	OE				3	3	3			9	9	18
7	EEC		4			2	1	6	8	21	18	27
	Total	24	27	23	23	25	24	25	14	185	175	185

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