

HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY
(An Autonomous Institution Affiliated to Anna University, Chennai)
(Approved by AICTE, New Delhi, Accredited by NAAC with 'A' Grade)
COIMBATORE 641 032



REGULATIONS 2016
CURRICULUM
(For students admitted from 2016-2017)

B.E. DEGREE
in
CIVIL ENGINEERING

**HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY,
COIMBATORE 641 032
(An Autonomous Institution Affiliated to Anna University, Chennai)**

VISION OF THE INSTITUTE

To become a premier institution by producing professionals with strong technical knowledge, innovative research skills and high ethical values

MISSION OF THE INSTITUTE

- To provide academic excellence in technical education through novel teaching methods.
- To empower students with creative skills and leadership qualities
- To produce dedicated professionals with social responsibility

VISION OF THE DEPARTMENT

To be recognized globally for pre-eminence in Civil Engineering education, research and service

MISSION OF THE DEPARTMENT

- To produce well-informed graduates with scientific and technical knowledge and excellent engineering skills for professional practice, advanced study and research.
- To inculcate professional and ethical responsibilities related to industry, society and environment.
- To interact with industries and address issues related to infrastructure, public health and environmental protection for sustainable development.

PROGRAMME EDUCATIONAL OBJECTIVES

To produce graduates with the ability to

- Excel as practicing engineers, academicians and researchers
- Play a vital role in the nation's infrastructural and sustainable development
- Hold professional and ethical responsibilities as engineers, consultants, entrepreneurs and pioneers while addressing the challenges of the society

PROGRAMME OUTCOMES

- a) Engineering Knowledge: Apply the knowledge of Mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex civil engineering problems.
- b) Problem Analysis: Identify, formulate, review research literature, and analyze complex civil engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- c) Design/development of solutions: Design solutions for complex civil engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural societal, and environmental considerations.
- d) Conduct investigations of complex problems: use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- e) Modern tool usage: create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
- f) The engineer and society: apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional civil engineering practice.
- g) Environment and sustainability: understand the impact of the professional civil engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

- h) Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the civil engineering practice.
- i) Individual and team work: function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- j) Communication: communicate effectively on complex civil engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- k) Project management and finance: demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage civil engineering projects and in multidisciplinary environments.
- l) Lifelong learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES

The graduates will be able to:

- Apply their engineering knowledge, communication skills, professional and ethical principles to solve problems in civil engineering and contribute to the infrastructural development in a sustainable way
- Use their engineering background to excel in competitive exams for advanced study, research and professional career

DEPARTMENT OF CIVIL ENGINEERING

SALIENT FEATURES OF SYLLABUS

1. Survey camp is conducted for a period of two weeks during the fourth semester summer vacation to enable the students to have a better understanding of field practices.
2. Implant training for a period of at least 4 weeks has been made mandatory for all the students to gain a real time experience to construction methods and practices.
3. Structural analysis and design using computer applications (STAAD.Pro and ANSYS) has been incorporated in the syllabus to meet the demands of the industry.
4. A separate course on “Valuation of Buildings” has been added as an elective course in the syllabus as per the recommendations of the industry experts
5. Students have the opportunity to opt for open electives offered by various departments to pursue a course of their own interest to develop inter departmental engineering skills.

REGULATION – 2016
B.E. CIVIL ENGINEERING
I TO VIII SEMESTERS CURRICULUM AND SYLLABI
SEMESTER I

S.No.	Course Code	Course Title	L	T	P	C	CIA	ESE	TOTAL
THEORY									
1	16MA1101	Engineering Mathematics-I	3	1	0	4	25	75	100
2	16PH1101	Engineering Physics	3	0	0	3	25	75	100
3	16CY1101	Engineering Chemistry	3	0	0	3	25	75	100
4	16HE1101R	Essential English for Engineers – I	3	1	0	4	50	50	100
5	16GE1101	Computer Programming	3	0	0	3	25	75	100
6	16GE1102	Engineering Graphics	2	0	4	4	25	75	100
PRACTICAL									
7	16PS1001	Physical Sciences Lab - I	0	0	2	1	50	50	100
8	16GE1001	Computer Programming Lab	0	0	4	2	50	50	100
9	16GE1002	Engineering Practices Lab	0	0	4	2	50	50	100
10	16GE1003	Value Added Course - I	0	0	2	1	-	100	100
Total :			17	2	16	27			1000

SEMESTER II

S.No.	Course Code	Course Title	L	T	P	C	CIA	ESE	TOTAL
THEORY									
1	16MA2102	Engineering Mathematics-II	3	1	0	4	25	75	100
2	16PH2102	Physics of Materials	3	0	0	3	25	75	100
3	16CY2103	Chemistry for Civil Engineering	3	0	0	3	25	75	100
4	16HE2102R	Essential English for Engineers - II	3	1	0	4	50	50	100
5	16GE2101	Engineering Mechanics	3	1	0	4	25	75	100
6	16EE2202	Basics of Electrical and Electronics Engineering	3	0	0	3	25	75	100
PRACTICAL									
7	16PS2001	Physical Sciences Lab - II	0	0	2	1	50	50	100
8	16CE2001	Computer Aided Drawing Lab	0	0	4	2	50	50	100
9	16GE2001	Value Added Course - II	0	0	2	1	-	100	100
Total :			18	3	8	25			1000

Signature and Name of Chairman, BOS

SEMESTER III

S.No.	Course Code	Course Title	L	T	P	C	CIA	ESE	TOTAL
THEORY									
1	16MA3104	Fourier Analysis and Numerical Methods	3	0	0	3	25	75	100
2	16CE3201	Mechanics of Solids	3	1	0	4	25	75	100
3	16CE3202	Mechanics of Fluids	3	0	0	3	25	75	100
4	16CE3203	Construction Materials, Equipment & Practices	3	0	0	3	25	75	100
5	16CE3204	Surveying I	3	0	0	3	25	75	100
6	16CE3205	Environmental Science and Engineering	3	0	0	3	25	75	100
PRACTICAL									
7	16CE3001	Survey Lab	0	0	4	2	50	50	100
8	16CE3002	Computer Aided Building Drawing	0	0	4	2	50	50	100
Total :			18	1	8	23			800

SEMESTER IV

S.No.	Course Code	Course Title	L	T	P	C	CIA	ESE	TOTAL
THEORY									
1	16MA4110	Applied Probability and Statistics	3	0	0	3	25	75	100
2	16CE4201	Strength of Materials	3	1	0	4	25	75	100
3	16CE4202	Applied Hydraulics and Hydraulic Machinery	3	0	0	3	25	75	100
4	16CE4203	Soil Mechanics	3	0	0	3	25	75	100
5	16CE4204	Surveying II	3	0	0	3	25	75	100
6	16CE4205	Highway & Railway Engineering	3	0	0	3	25	75	100
PRACTICAL									
7	16CE4001	Strength of Materials Lab	0	0	4	2	50	50	100
8	16CE4002	Fluid Mechanics and Hydraulic Machinery Lab	0	0	4	2	50	50	100
Total :			18	1	8	23			800

Signature and Name of Chairman, BOS

SEMESTER V

S.No.	Course Code	Course Title	L	T	P	C	CIA	ESE	TOTAL
THEORY									
1	16CE5201	Structural Analysis I	3	1	0	4	25	75	100
2	16CE5202	Design of RCC Elements	3	0	0	3	25	75	100
3	16CE5203	Design of Steel Structures	3	0	0	3	25	75	100
4	16CE5204	Water supply Engineering	3	0	0	3	25	75	100
5	16CE5205	Foundation Engineering	3	0	0	3	25	75	100
6	16CE53XX	Professional Elective - I	3	0	0	3	25	75	100
PRACTICAL									
7	16CE5001	Soil Mechanics Laboratory	0	0	4	2	50	50	100
8	16CE5002	Concrete and Highway Laboratory	0	0	4	2	50	50	100
9	16CE5003	Survey Camp	0	0	0	1	-	100	100
Total :			18	1	8	24			900

*Survey camp of two weeks has to be undergone by the student during fourth semester vacation.

SEMESTER VI

S.No.	Course Code	Course Title	L	T	P	C	CIA	ESE	TOTAL
THEORY									
1	16CE6201	Structural Analysis II	3	1	0	4	25	75	100
2	16CE6202	Design of RCC Structures	3	0	0	3	25	75	100
3	16CE6203	Hydrology	3	0	0	3	25	75	100
4	16CE6204	Wastewater Engineering	3	0	0	3	25	75	100
5	16CE63XX	Professional Elective II	3	0	0	3	25	75	100
6	16XX64XX	Open Elective I	3	0	0	3	25	75	100
PRACTICAL									
7	16CE6001	Environmental Engineering Laboratory	0	0	4	2	50	50	100
8	16CE6002	Design and Drawing- I (RCC & Steel)	0	0	4	2	50	50	100
Total :			18	1	8	23			800

Signature and Name of Chairman, BOS

SEMESTER VII

S.No.	Course Code	Course Title	L	T	P	C	CIA	ESE	TOTAL
THEORY									
1	16CE7201	Estimation, Costing and Valuation Engineering	3	0	0	3	25	75	100
2	16CE7202	Concrete Technology	3	0	0	3	25	75	100
3	16CE7203	Irrigation and Hydraulic Structures	3	0	0	3	25	75	100
4	16CE73XX	Professional Elective III	3	0	0	3	25	75	100
5	16CE73XX	Professional Elective IV	3	0	0	3	25	75	100
6	16XX74XX	Open Elective II	3	0	0	3	25	75	100
PRACTICAL									
7	16CE7001	Design and Drawing – II(Irrigation & Env. Engg.)	0	0	4	2	50	50	100
8	16CE7002	Design Project	0	0	6	3	50	50	100
9	16CE7701	Implant Training / Internship*	0	0	0	2	0	100	100
Total :			18	0	10	25			900

*Training of four weeks has to be undergone by the student from third semester vacation to sixth semester vacation.

SEMESTER VIII

S.No.	Course Code	Course Title	L	T	P	C	CIA	ESE	TOTAL
THEORY									
1	16CE8201	Structural Dynamics and Earthquake Engineering	3	0	0	3	25	75	100
2	16CE83XX	Professional Elective V	3	0	0	3	25	75	100
3	16CE83XX	Professional Elective VI	3	0	0	3	25	75	100
PRACTICAL									
4	16CE8901	Project Work	0	0	16	8	100	100	200
Total :			9	0	16	17			500

Total No. of Credits: 187

Signature and Name of Chairman, BOS

LIST OF ELECTIVES**PROFESSIONAL ELECTIVE – I**

S.No.	Course Code	Course Title	L	T	P	C	CIA	ESE	TOTAL
THEORY									
1	16CE5301	Advanced Surveying Techniques	3	0	0	3	25	75	100
2	16CE5302	Remote Sensing and GIS	3	0	0	3	25	75	100
3	16CE5303	Architecture	3	0	0	3	25	75	100
4	16CE5304	Construction Planning and Scheduling	3	0	0	3	25	75	100
5	16CE5305	Urban Planning and Development	3	0	0	3	25	75	100

PROFESSIONAL ELECTIVE – II

S.No.	Course Code	Course Title	L	T	P	C	CIA	ESE	TOTAL
THEORY									
1	16CE6301	Airports, Docks and Harbour Engineering	3	0	0	3	25	75	100
2	16CE6302	Interior Design	3	0	0	3	25	75	100
3	16CE6303	Groundwater Engineering	3	0	0	3	25	75	100
4	16CE6304	Disaster Resistant Structures	3	0	0	3	25	75	100
5	16CE6305	Design of Masonry and Timber Structures	3	0	0	3	25	75	100

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PROFESSIONAL ELECTIVE – III

S.No.	Course Code	Course Title	L	T	P	C	CIA	ESE	TOTAL
THEORY									
1	16CE7301	Integrated Water Resources Management	3	0	0	3	25	75	100
2	16CE7302	Tall Buildings	3	0	0	3	25	75	100
3	16CE7303	Rock Engineering	3	0	0	3	25	75	100
4	16CE7304	Housing Planning and Management	3	0	0	3	25	75	100
5	16CE7305	Valuation of Buildings	3	0	0	3	25	75	100

PROFESSIONAL ELECTIVE – IV

S.No.	Course Code	Course Title	L	T	P	C	CIA	ESE	TOTAL
THEORY									
1	16CE7306	Air Pollution Management	3	0	0	3	25	75	100
2	16CE7307	Environmental Impact Assessment	3	0	0	3	25	75	100
3	16CE7308	Bridge Engineering	3	0	0	3	25	75	100
4	16CE7309	Municipal Solid Waste Management	3	0	0	3	25	75	100
5	16CE7310	Finite Element Techniques	3	0	0	3	25	75	100

Signature and Name of Chairman, BOS

PROFESSIONAL ELECTIVE – V

S.No.	Course Code	Course Title	L	T	P	C	CIA	ESE	TOTAL
THEORY									
1	16CE8301	Industrial Wastewater Engineering	3	0	0	3	25	75	100
2	16CE8302	Design of Industrial Structures	3	0	0	3	25	75	100
3	16CE8303	Computer Aided Design of Structures	3	0	0	3	25	75	100
4	16CE8304	Prefabricated Structures	3	0	0	3	25	75	100
5	16CE8305	Ground Improvement Techniques	3	0	0	3	25	75	100

PROFESSIONAL ELECTIVE – VI

S.No.	Course Code	Course Title	L	T	P	C	CIA	ESE	TOTAL
THEORY									
1	16CE8306	Hazardous Waste Management and Site Remediation	3	0	0	3	25	75	100
2	16CE8307	Design of Prestressed Concrete Structures	3	0	0	3	25	75	100
3	16CE8308	Repair and Rehabilitation of Structures	3	0	0	3	25	75	100
4	16CE8309	Earth Retaining Structures	3	0	0	3	25	75	100
5	16CE8310	Engineering Economics and Cost Analysis	3	0	0	3	25	75	100

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OPEN ELECTIVES**THEORY**

S.No.	Course Code	Course Title	L	T	P	C	CIA	ESE	TOTAL
AERONAUTICAL ENGINEERING									
1	16AE6401	Introduction to Flight	3	0	0	3	25	75	100
2	16AE7402	Industrial Aerodynamics	3	0	0	3	25	75	100
AUTOMOBILE ENGINEERING									
1	16AU6401	Basis of Automobile Engineering	3	0	0	3	25	75	100
2	16AU7401	Automotive Safety	3	0	0	3	25	75	100
CIVIL ENGINEERING									
1	16CE6401	Building Services	3	0	0	3	25	75	100
2	16CE7402	Strategies of Green Buildings	3	0	0	3	25	75	100
COMPUTER SCIENCE AND ENGINEERING									
1	16CS6401	Soft Computing	3	0	0	3	25	75	100
2	16CS6402	Optimization Techniques	3	0	0	3	25	75	100
ELECTRONICS AND COMMUNICATION ENGINEERING									
1	16EC6401	Consumer Electronics	3	0	0	3	25	75	100
2	16EC7402	Internet Of Things	3	0	0	3	25	75	100
ELECTRONICS AND INSTRUMENTATION ENGINEERING									
1	16EI6401	Neural Networks and Fuzzy Systems	3	0	0	3	25	75	100
2	16EI7402	Electrical Energy Management	3	0	0	3	25	75	100
ELECTRICAL AND ELECTRONICS ENGINEERING									
1	16EE6401	Industrial Automation – PLC and SCADA	3	0	0	3	25	75	100
2	16EE7402	LabVIEW for Engineering Applications	3	0	0	3	25	75	100
INFORMATION TECHNOLOGY									

1	16IT6401	Cyber Security and Forensics	3	0	0	3	25	75	100
2	16IT7402	Artificial Intelligence	3	0	0	3	25	75	100
MECHANICAL ENGINEERING									
1	16ME7402	Composite Materials for Engineering	3	0	0	3	25	75	100
2	16ME6401	Rapid Prototyping and Lean Manufacturing	3	0	0	3	25	75	100
MECHATRONICS ENGINEERING									
1	16MT7402	Hybrid Vehicles System	3	0	0	3	25	75	100
2	16MT6401	Industrial Safety and Environment	3	0	0	3	25	75	100

CREDIT DISTRIBUTION

Semester	I	II	III	IV	V	VI	VII	VIII	Total
Credits	27	25	23	23	24	23	25	17	187

Signature and Name of Chairman, BOS
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