

# **B.E. - Civil Engineering**

## **CURRICULUM & SYLLABI**

### ***Regulations 2016***

*(Applicable to candidates admitted in the academic year 2016-2017 onwards)*



## **K.S.R. College of Engineering**


**(Autonomous)**

**K.S.R. Kalvi Nagar, Tiruchengode - 637 215**

**Namakkal (Dt), Tamilnadu, India**


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 <b>K.S.R. COLLEGE OF ENGINEERING (Autonomous)</b> (Approved by AICTE, New Delhi & Affiliated to Anna University) K.S.R. Kalvi Nagar, Tiruchengode – 637 215		<b>CURRICULUM UG R - 2016</b>								
Department		Civil Engineering								
Programme		B.E. – Civil Engineering								
SEMESTER - I										
Sl. No.	Course Code	Course Name	Category	Hours / Week			Credit	Maximum Marks		
				L	T	P		C	CA	ES
<b>THEORY</b>										
1.	16EN151	Technical English – I (Common To All Branches)	HS	3	0	0	3	30	70	100
2.	16MA152	Engineering Mathematics – I (Common To All Branches)	BS	3	1	0	4	30	70	100
3.	16PH153	Engineering Physics (Common To All Branches)	BS	3	0	0	3	30	70	100
4.	16CY154	Engineering Chemistry (Common To All Branches)	BS	3	0	0	3	30	70	100
5.	16CE115	Engineering Graphics and Drafting	ES	1	3	0	4	30	70	100
6.	16CS146	Fundamentals of Computer & C Programming	ES	3	0	0	3	30	70	100
<b>PRACTICAL</b>										
7.	-	Physics and Chemistry Laboratory * (Common To All Branches)	BS	-	-	3	-	-	-	-
8.	16CS127	Computer Practices Laboratory	ES	0	0	3	2	50	50	100
9.	16GE027	Engineering Practices Laboratory	ES	0	0	3	2	50	50	100
Total				16	4	9	24	800		

\*End Semester Examination only in II Semester


SEMESTER - II										
Sl. No.	Course Code	Course Name	Category	Hours / Week			Credit	Maximum Marks		
				L	T	P		C	CA	ES
<b>THEORY</b>										
1.	16EN251	Technical English – II	HS	3	0	0	3	30	70	100
2.	16MA242	Engineering Mathematics – II (Common To AU, CE, ECE, EEE, IT, MECH)	BS	3	1	0	4	30	70	100
3.	16PH241	Applied Physics (Common To CE, MECH)	BS	3	0	0	3	30	70	100
4.	16CY254	Environmental Science and Engineering (Common To All Branches)	HS	3	0	0	3	30	70	100
5.	16CE215	Engineering Mechanics	ES	3	1	0	4	30	70	100
6.	16EE246	Basics of Electrical and Electronics Engineering (Common To AU, CE & ME)	ES	3	0	0	3	30	70	100
<b>PRACTICAL</b>										
7.	16GE228	Physics and Chemistry Laboratory (Common To All Branches)	BS	0	0	3	2	50	50	100
8.	16CE221	Computer Aided Drawing Laboratory	PC	0	0	3	2	50	50	100
9.	16CE222	Construction Materials Laboratory	PC	0	0	3	2	50	50	100
10.	16HR251	Career Development Skills– I (Common To All Branches)	EEC	0	2	0	0	50	50	100
Total				18	4	9	26	1000		

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Department		Civil Engineering								
Programme		B.E. – Civil Engineering								
<b>SEMESTER - III</b>										
Sl. No.	Course Code	Course Name	Category	Hours / Week			Credit	Maximum Marks		
				L	T	P		C	CA	ES
<b>THEORY</b>										
1.	16MA341	Engineering Mathematics – III (Common To AU, CE, ECE, MECH)	BS	3	1	0	4	30	70	100
2.	16CE312	Applied Geology	ES	3	0	0	3	30	70	100
3.	16CE313	Mechanics of Solids	PC	3	1	0	4	30	70	100
4.	16CE314	Fluid Mechanics	PC	3	0	0	3	30	70	100
5.	16CE315	Construction Materials	PC	3	0	0	3	30	70	100
6.	16CE316	Surveying	PC	3	0	0	3	30	70	100
<b>PRACTICAL</b>										
7.	16CE321	Building Planning and CAD Laboratory	PC	0	0	3	2	50	50	100
8.	16CE322	Strength of Materials and Construction Practice Laboratory	ES	0	0	3	2	50	50	100
9.	16CE323	Survey Practical	PC	0	0	3	2	50	50	100
10.	16HR351	Career Development Skills- II	EEC	0	2	0	0	50	50	100
Total				18	4	9	26	4		


<b>SEMESTER - IV</b>										
Sl. No.	Course Code	Course Name	Category	Hours / Week			Credit	Maximum Marks		
				L	T	P		C	CA	ES
<b>THEORY</b>										
1.	16MA441	Numerical Methods (Common To AU, CE, MECH)	BS	3	1	0	4	30	70	100
2.	16CE412	Soil Mechanics	PC	3	0	0	3	30	70	100
3.	16CE413	Strength of Materials	ES	3	1	0	4	30	70	100
4.	16CE414	Applied Hydraulic Engineering and Machinery	PC	3	0	0	3	30	70	100
5.	16CE415	Construction Techniques, Equipment and Practices	PC	3	0	0	3	30	70	100
6.	16CE416	Highway Engineering	PC	3	0	0	3	30	70	100
<b>PRACTICAL</b>										
7.	16CE421	Fluid Mechanics and Machinery Laboratory	PC	0	0	3	2	50	50	100
8.	16CE422	Soil Mechanics Laboratory	PC	0	0	3	2	50	50	100
9.	16CE423	Highway Engineering Laboratory	PC	0	0	3	2	50	50	100
10.	16HR423	Career Development Skills –III	EEC	0	2	0	0	50	50	100
Total				18	4	9	26	1000		

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Department		Civil Engineering								
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<b>SEMESTER V</b>										
Sl. No.	Course Code	Course Name	Category	Hours / Week			Credit C	Maximum Marks		
				L	T	P		CA	ES	Total
<b>THEORY</b>										
1.	16CE511	Railways Airport and Harbour Engineering	PC	3	0	0	3	30	70	100
2.	16CE512	Concrete Technology	PC	3	0	0	3	30	70	100
3.	16CE513	Structural Analysis – I	PC	3	1	0	4	30	70	100
4.	16CE514	Design of RC Elements & Structures	PC	3	1	0	4	30	70	100
5.	16CE515	Environmental Engineering – I	PC	3	0	0	3	30	70	100
6.	16CE516	Foundation Engineering	PC	3	0	0	3	30	70	100
<b>PRACTICAL</b>										
7.	16CE521	Environmental Engineering Laboratory	PC	0	0	3	2	50	50	100
8.	16CE522	Concrete Laboratory	PC	0	0	3	2	50	50	100
9.	16CE523	Survey Camp ( 4 weeks during V Sem Summer)	EEC	0	0	-	2	50	50	100
10.	16HR524	Career Development Skills –IV	EEC	0	2	0	0	50	50	100
Total				18	4	6	26	1000		

<b>SEMESTER –VI</b>										
Sl. No.	Course Code	Course Name	Category	Hours / Week			Credit C	Maximum Marks		
				L	T	P		CA	ES	Total
<b>THEORY</b>										
1.	16CE611	Irrigation Engineering	PC	3	0	0	3	30	70	100
2.	16CE612	Structural Analysis – II	PC	3	1	0	4	30	70	100
3.	16CE613	Design of Steel, Timber and Masonry Structures	PC	3	1	0	4	30	70	100
4.	16CE614	Environmental Engineering–II	PC	3	0	0	3	30	70	100
5.		Professional Elective – I	PE	3	0	0	3	30	70	100
6.		Open Elective – I	OE	3	0	0	3	30	70	100
<b>PRACTICAL</b>										
7.	16CE621	Irrigation and Environmental Engineering Drawing	PC	0	0	3	2	50	50	100
8.	16CE622	Structural Design and Detailing Laboratory	EEC	0	0	3	2	50	50	100
9.	16HR625	Career Development Skills –V	EEC	0	2	0	0	50	50	100
Total				18	4	8	24	900		

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Department		Civil Engineering								
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<b>SEMESTER VII</b>										
Sl. No.	Course Code	Course Name	Category	Hours / Week			Credit C	Maximum Marks		
				L	T	P		CA	ES	Total
<b>THEORY</b>										
1.	16HS751	Professional Ethics (Common To All Branches)	HS	3	0	0	3	30	70	100
2.	16CE712	Quantity Surveying and Estimation	PC	3	0	0	3	30	70	100
3.	16CE713	Basics of Dynamics and Aseismic Design	PC	3	0	0	3	30	70	100
4.		Professional Elective – II	PE	3	0	0	3	30	70	100
5.		Professional Elective – III	PE	3	0	0	3	30	70	100
6.		Open Elective – II	OE	3	0	0	3	30	70	70
<b>PRACTICAL</b>										
7.	16CE721	Computer Methods for Planning and Quantification	EEC	0	0	3	2	50	50	100
8.	16CE722	Design Project	EEC	0	0	3	2	50	50	100
9.	16CE723	Industrial Training ( 4 weeks during VI Sem Summer)	EEC	0	0	-	2	50	50	100
Total				18	0	6	24	900		

<b>SEMESTER –VIII</b>										
Sl. No.	Course Code	Course Name	Category	Hours / Week			Credit C	Maximum Marks		
				L	T	P		CA	ES	Total
<b>THEORY</b>										
1.	16CE811	Construction Management	PC	3	0	0	3	30	70	100
2.		Professional Elective – IV	PE	3	0	0	3	30	70	100
3.		Professional Elective – V	PE	3	0	0	3	30	70	100
<b>PRACTICAL</b>										
4.	16CE821	Project Work	EEC	0	0	12	6	50	50	100
Total				9	0	12	15	400		

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	Department	Civil Engineering	
Programme	B.E. – Civil Engineering		
<b>List of Electives</b>			

<b>ELECTIVE – I (SEMESTER – VI)</b>										
Sl. No.	Course Code	Course Name	Specialization	Hours / Week			Credit	Maximum Marks		
				L	T	P		C	CA	ES
1.	16CE661	Prefabricated Structures	S1	3	0	0	3	30	70	100
2.	16CE662	Maintenance and Rehabilitation of Structures	S2	3	0	0	3	30	70	100
3.	16CE663	Chemical Principles in Environmental Engineering	S3	3	0	0	3	30	70	100
4.	16CE664	Hydrology	S4	3	0	0	3	30	70	100
5.	16CE665	Remote Sensing and GIS	S5	3	0	0	3	30	70	100
6.	16CE666	Electronic Surveying	S5	3	0	0	3	30	70	100
7.	16CE667	Total Station and GPS Surveying	S5	3	0	0	3	30	70	100
8.	16CE668	Traffic Engineering and Management	S6	3	0	0	3	30	70	100
9.	16CE669	Highway and Airport Pavement Materials	S6	3	0	0	3	30	70	100
10.	16CE671	Ground Improvement Techniques	S7	3	0	0	3	30	70	100
11.	16CE672	Advanced Foundation Design and Construction	S7	3	0	0	3	30	70	100
12.	16HS673	Indian Constitution and Society	S8	3	0	0	3	30	70	100

<b>ELECTIVE – II &amp; III (SEMESTER – VII)</b>										
Sl. No.	Course Code	Course Name	Specialization	Hours / Week			Credit	Maximum Marks		
				L	T	P		C	CA	ES
1.	16CE761	Applications of Matrix Methods in Structural Analysis	S1	3	0	0	3	30	70	100
2.	16CE762	Prestressed Concrete	S1	3	0	0	3	30	70	100
3.	16CE763	Bridge Engineering	S1	3	0	0	3	30	70	100
4.	16CE764	Storage Structures	S1	3	0	0	3	30	70	100
5.	16CE765	Industrial Structures	S1	3	0	0	3	30	70	100
6.	16CE766	Tall Buildings	S1	3	0	0	3	30	70	100
7.	16CE767	Design of Plate and Shell Structures	S1	3	0	0	3	30	70	100
8.	16CE768	Construction Safety Practices	S2	3	0	0	3	30	70	100
9.	16CE769	Operational Research Techniques in Civil Engineering	S2	3	0	0	3	30	70	100
10.	16CE771	Air Pollution Management	S3	3	0	0	3	30	70	100
11.	16CE772	Environmental Impact Assessment	S3	3	0	0	3	30	70	100

12	16CE773	Industrial Waste Management	S3	3	0	0	3	30	70	100
13	16CE774	Ground Water Engineering	S3	3	0	0	3	30	70	100
14	16CE775	Air and Water Quality Modeling	S3	3	0	0	3	30	70	100
15	16CE776	Water Resources Systems Engineering	S4	3	0	0	3	30	70	100
16	16CE777	Geo - informatics Applications for Civil Engineering	S5	3	0	0	3	30	70	100
17	16CE778	Geographical Information System	S5	3	0	0	3	30	70	100
18	16CE779	Advanced Surveying	S5	3	0	0	3	30	70	100
19	16CE781	Transport System and Planning	S6	3	0	0	3	30	70	100
20	16CE782	Urban Planning and Development	S6	3	0	0	3	30	70	100
21	16CE783	Geotechnical Earthquake Engineering	S7	3	0	0	3	30	70	100
22	16HS001	Principles of Management (Common To AU, CE, EEE, ECE,)	S8	3	0	0	3	30	70	100

**ELECTIVE – IV & V (SEMESTER – VIII)**

Sl. No.	Course Code	Course Name	Specialization	Hours / Week			Credit C	Maximum Marks		
				L	T	P		CA	ES	Total
1.	16CE861	Disaster Resisting Structures	S1	3	0	0	3	30	70	100
2.	16CE862	Smart Materials and Smart Structures	S1	3	0	0	3	30	70	100
3.	16CE863	Computer Aided Design of Structures	S1	3	0	0	3	30	70	100
4.	16CE864	Earthquake Engineering	S1	3	0	0	3	30	70	100
5.	16CE865	Finite Element Method	S1	3	0	0	3	30	70	100
6.	16CE866	Power Plant Structures	S1	3	0	0	3	30	70	100
7.	16CE867	Housing, Planning and Management	S2	3	0	0	3	30	70	100
8.	16CE868	Town Planning and Architecture	S2	3	0	0	3	30	70	100
9.	16CE869	Municipal Waste and Management	S3	3	0	0	3	30	70	100
10	16CE871	Design of Urban Water Systems	S3	3	0	0	3	30	70	100
11	16CE872	Geo-Environmental Engineering	S3	3	0	0	3	30	70	100
12	16CE873	Coastal Zone Management	S4	3	0	0	3	30	70	100
13	16CE874	Management of Irrigation Systems	S4	3	0	0	3	30	70	100
14	16CE875	Cartography	S5	3	0	0	3	30	70	100
15	16CE876	Pavement Engineering	S6	3	0	0	3	30	70	100
16	16HS877	Soil Dynamics and Machine Foundations	S7	3	0	0	3	30	70	100
17	16HS878	Intellectual Property Rights	S8	3	0	0	3	30	70	100
18	16HS002	Total Quality Management (Common To AU, CE, CSE, EEE, ME, IT)	S8	3	0	0	3	30	70	100

S1 -Structural Engineering

S5 - Geo informatics &amp; Survey Engineering

S2 - Construction Engineering

S6 - Transport Engineering

S3 - Environmental Engineering

S7 - Soil &amp; Foundation Engineering

S4 - Hydrology &amp; Water Resources

S8- Humanities

**LIST OF PROPOSED ONE CREDIT COURSES**

Sl. No.	Course Name	Numbers of Hours	Offered by Internal / External
1.	Applied Statistical Methods	15	Internal
2.	Cement Chemistry	15	Internal
3.	Architecture Planning Aspects	15	Internal
4.	Modern Construction Practices	15	Internal
5.	Application of Total Station	15	Internal
6.	Design of Foundation System	15	Internal
7.	Payment Design	15	Internal
8.	E-Tabs Applications	15	Internal
9.	CPM & PERT	15	Internal
10	Contract and Tender Procedures	15	Internal
11	Materials Management	15	Internal
12	Water Harvesting & Management	15	Internal

S.No	Subject Area	Credits per semester								Credits Total	% of Credits
		I	II	III	IV	V	VI	VII	VIII		
1	HS	3	6					3		12	6.28
2	BS	10	9	4	4					27	14.14
3	ES	11	7	5	4					27	14.14
4	PC		4	17	18	24	16	6	3	88	46.07
5	PE						3	6	6	15	7.85
6	OE						3	3		6	3.14
7	EEC					2	2	6	6	16	8.38
Total		24	26	26	26	26	24	24	15	191	100



