Mahindra École Centrale

Bahadurpally, Hyderabad 500043

ACADEMIC REGULATIONS FOR FOUR-YEAR UNDERGRADUATE DEGREE PROGRAMS

(Applicable to students from the Academic Year 2016-17 and onwards)

COURSE CATEGORIES

S. No.	Category	Description
1	CB – Chemistry	Courses in Chemistry.
2	PH - Physics	Courses in Physics
3	ES – Engineering Science	Courses in Engineering Sciences
4	CE – Civil Engineering	Courses related to Civil Engineering
5	CS – Computer Science	Courses in Computer Science and Technology
6	EE – Electrical Engineering	Courses of Electrical Engineering
7	ME – Mechanical Engineering	Courses in Mechanical Engineering
8	HS – Humanities and Social Sciences	Courses in Language, Culture, Philosophy, etc.
9	SE – Society & Enterprise	Includes projects and courses in Media, Industrial Engineering, Management, Finance, etc.
10	PR – Projects	Includes third year and final year projects

CURRICULUM

Semester 1

	Code	Course	L	T	P	Credits
1	CB-101	Chemistry	4	2	2	6
2	MA-101	Mathematics-I	4	2	0	5
3	EE-101	Basic Electrical Engineering	2	1	2	3.5
4	CS-101	Intro. To Computer Science	2	0	2	3
5	HS-101	English & Humanities - I	1	2	0	2
6	SE-101	Intro. To Society & Technology	1	1	0	1.5
7	HS-102	French Language & Culture	0	2	0	0
		Total Credits				21

Semester 2

	Code	Course	L	T	P	Credits
1	MA-102	Mathematics -II	4	2	0	5
2	EE-102	Electronics	2	1	2	3.5
3	ME-101	Intro. To Engineering Design	2	0	2	3
4	PH-101	Physics-I	4	2	2	6
5	SE-102	Media Project	1	1	0	1.5
6	HS-103	English & Humanities – II	1	2	0	2
7	HS-104	French Language & Culture	0	2	0	0
		Total Credits				21

Semester 3

	Code	Course	L	T	P	Credits
1	CE-211	Engineering Mathematics - III	3	1	0	3
2	CE-212	Structural Analysis -I	3	1	0	3
3	CE-213	Surveying-1	3	1	0	3
4	CE-214	Engineering Geology	3	1	0	3
5	CE-215	Hydraulics	3	1	0	3
6	CE-216	Transportation Engineering -1	3	1	0	3
7	CE-217	Structural Analysis Lab	0	0	3	1
8	CE-218	Surveying-1 Lab	0	0	3	2
9	CE-219	Engineering Geology Lab	0	0	3	1
10	CE-210	Hydraulics Lab	0	0	3	2
11	HS-206	FRENCH LANGUAGE & CULTURE III	0	2	0	0
		Total Credits				24

Semester 4

	Code	Course	L	T	P	Credits
1	CE-221	Structural Analysis -II	3	1	0	3
2	CE-222	Surveying-II	3	1	0	3
3	CE-223	Environmental Engineering-I	3	1	0	3
4	CE-224	Design Thinking	1	0	3	2
5	CE-225	Transportation Engineering-II	3	1	0	3
6	CE-226	Geotechnical Engineering-I	3	1	0	3
7	CE-227	Surveying-II Lab	0	0	3	2
8	CE-228	Environmental Engineering-I Lab	0	0	3	2
9	CE-229	Transportation Engineering Lab	0	0	3	1
10	CE-220	Geotechnical Engineering-I Lab	0	0	3	1
11	HS-208	FRENCH LANGUAGE & CULTURE IV	0	2	0	0
		Total Credits				23

Semester 5

	Code	Course	L	T	P	Credits
1	MA 305	Mathematics V	3	1	0	4
2	ES 312	Introduction to Materials Sciences	2	0	2	3
3	CE 306	Computing Lab	1	0	4	3
4	CE 307	Foundation Engineering	3	0	0	3
5	CE 308	Concrete Technology	2	0	2	3
6	CE 310	Water Resources Engineering	3	0	0	3
7	SE 303	Introduction to Enterprise and Economy	2	1	0	3
8	HS 310	French Language & Culture - V	0	2	0	0
		Total Credits				**22**

Semester 6

	Code	Course	L	T	P	Credits
1	CE 309	Civil Engineering Labs	0	0	4	2
2	CE 311	Reinforced Concrete Design	3	1	0	4
3	CE 312	Building Materials	2	0	0	2
4	CE 313	Advanced Mechanics of Solids	3	0	0	3
5	ES 304	Data Structures	2	1	2	4
6	E1	Elective - I	3	0	0	3
7	PR 301	Third year team project	0	0	6	3
8	HS-E1	HSS + Mgmt. - Elective - I	2	0	0	2
9	HS 312	French Language & Culture - VI	0	2	0	0
		Total Credits				**23**

Semester 7

	Code	Course	L	T	P	Credits
1	CE 414	Design of Steel Structures	3	1	0	4
2	CE 415	Construction Technology and Drawing	2	0	2	3
3	CE 416	Construction Planning and Management	2	0	0	2
4	HS - E2	HSS + Mgmt. - Elective - II	2	0	0	2
5	E2	Elective - I	3	0	0	3
6	E3	Elective - II	3	0	0	3
7	HS 401	Professional Ethics	0	1	0	1
8	PR 402	Year – 4 Project	0	1	4	3
9	HS 414	French Language & Culture - VII	0	2	0	0
		Total Credits				**21**

Semester 8

	Code	Course	L	T	P	Credits
1	E4	Elective - I	3	0	0	3
2	E5	Elective - II	3	0	0	3
3	PR 403	Year-4 Project	0	5	8	9
4	HS 416	French Language & Culture - VIII	0	2	0	0
		Total Credits				**15**

List of Electives (semesters 6,7, and 8)

S.No.	Code	Course	L	T	P	Credits
1	CE 450	TE - II (Railways, Airports & Harbour Engg.)	3	0	0	3
2	CE 451	Traffic Engineering and Management	3	0	0	3
3	CE 452	Intelligent Transportation Systems	3	0	0	3
4	CE 453	Pavement Analysis and Design	3	0	0	3
5	CE 454	Transport and Environment	3	0	0	3
6	CE 455	Urban Transportation Planning	3	0	0	3
7	CE 456	Pavement Material Characterization and construction	3	0	0	3
8	CE 457	Airport Planning and Design	3	0	0	3
9	CE 460	Advanced Foundation Engineering	3	0	0	3
10	CE461	Advanced Soil Mechanics	3	0	0	3
11	CE462	Environmental Geotechnics	3	0	0	3
12	CE463	Geosynthetics and Reinforced Soil Structures	3	0	0	3
13	CE464	Geotechnical Earthquake Engineering	3	0	0	3
14	CE465	Ground Improvement Techniques	3	0	0	3
15	CE466	Risk assessment and Management in Geotech. Engg.	3	0	0	3
16	CE467	Rock Mechanics	3	0	0	3
17	CE468	Soil Dynamics and Machine Foundations	3	0	0	3
18	CE 469	Soil-Structure Interaction	3	0	0	3
19	CE 470	Introduction to Continuum Mechanics	3	0	0	3
20	CE 471	Introduction to Finite Element Analysis	3	0	0	3
21	CE 472	Introduction to Fracture Mechanics	3	0	0	3
22	CE 473	Introduction to Structural Health Monitoring	3	0	0	3
23	CE 474	Earthquake Engineering	3	0	0	3
24	CE 475	Dynamics of Structures	3	0	0	3

			L	T	P	C
25	CE 480	Sanitary Engineering and Design	3	0	0	3
26	CE 481	Advanced Waste Water Treatment and Design	3	0	0	3
27	CE 482	Environmental Impact Assessment	3	0	0	3
28	CE 483	Industrial Waste Management	3	0	0	3
29	CE 484	Design of Environmental Engineering Structures	3	0	0	3
30	CE 485	RS and GIS for Environmental Engineering	3	0	0	3
31	CS 313	Machine learning	2	0	2	3
32	CS 451	Embedded Systems	3	0	0	3
33	CS 457	Deep Learning	3	0	0	3
34	CS 460	Object oriented Programing	3	0	0	3
35	ME 452	Introduction to Operation Research	3	0	0	3
36	ME 460	Alternative Energy Sources	3	0	0	3
37	ME 469	Computational Fluid Dynamics	3	0	0	3
38	ME 470	Robotics: Dynamics and Control	3	0	0	3
39	MA 450	Numerical Linear Algebra	3	0	0	3
40	MA 451	Meshfree Methods	3	0	0	3
41	MA 452	Boundary Element Method and Boundary Integral Equations	3	0	0	3
42	MA 453	PDE Based Image Processing	3	0	0	3
43	MA 454	Topology and Operator Theory	3	0	0	3
44	MA 455	Infinite dimensional Control Theory	3	0	0	3
45	MA 456	Bayesian Statistics	3	0	0	3
46	MA 457	Financial Mathematics	3	0	0	3
47	EE 471	Digital Image Processing	3	0	0	3
48	EE 486	Sensors and Instrumentation	3	0	0	3

List of HS Electives (for semesters 5,6, and 7):

S.No.	Code	Course	L	T	P	Credits
1	HS 500	Selections from World Literature	2	0	0	2
2	HS 501	Business Communication	2	0	0	2
3	HS 502	Visual Story Telling	2	0	0	2
4	HS 503	Introduction to Culture Studies	2	0	0	2
5	HS 504	Literature and Visual Arts	2	0	0	2
6	HS 505	Cinema and Philosophy	2	0	0	2
7	HS 506	The Humanities for a Critical Understanding of the World	2	0	0	2
8	HS 507	Academic Writing	2	0	0	2
9	HS 508	Urban Studies: Reading the City	2	0	0	2
10	HS 509	Contemporary Shakespeare: Readings and Adaptations	2	0	0	2
11	HS 510	Philosophical Arguments	2	0	0	2