Mahindra École Centrale

Bahadurpally, Hyderabad 500043

ACADEMIC REGULATIONS FOR FOUR-YEAR UNDERGRADUATE DEGREE PROGRAMS

(Applicable to students from the Academic Year 2018-19 and onwards)

COURSE CATEGORIES

S. No.	Category	Description
1	CH – 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	MA 101	Mathematics - I	4	1	0	5
2	CH 101	Chemistry - I	2	1	0	3
3	ES 101	Introduction to Electrical Engineering	2	1	2	4
4	ES 102	Engineering Drawing	0	0	3	1.5
5	ES 103	Earth and Environmental Sciences	2	0	0	2
6	ES 104	Thermodynamics	2	1	0	3
7	SE 101	Media Project	0	0	3	1.5
8	HS 101	English and Humanities - I	1	2	2	4
9	FL 101	French language & Culture - I	0	2	0	0
		Total Credits	13	8	10	**24**
		Total contact hours	31			

Semester 2						
	Code	**Course**	**L**	**T**	**P**	**Credits**
1	MA 102	Mathematics - II	3	1	0	4
2	PH 101	Physics - I	2	1	2	4
3	CH 102	Chemistry - II	2	0	2	3
4	ES 105	Electronics	2	1	2	4
5	ES 106	Introduction to Computer Science	2	1	2	4
6	ES 107	Workshop Practice	0	0	2	0
7	SE 102	Introduction to Enterprise & Economy	2	1	0	3
8	HS 102	Professional Ethics	0	1	0	1
9	FL 102	French language & Culture - II	0	2	0	0
		Total Credits				**23**

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		Total contact hours	31			
Semester 3						
	Code	**Course**	**L**	**T**	**P**	**Credits**
1	MA 203	Mathematics - III	3	1	0	4
2	PH 202	Physics - II	3	1	2	5
3	ES 208	Mechanics	2	1	0	3
4	ES 209	Signals & Systems	2	1	2	4
5	ES 210	Data Structures	2	2	2	5
6	CE 201	Building Materials	2	0	0	2
7	FL 203	French language & Culture - III	0	2	0	0
		Total Credits	14	8	6	**23**
		Total contact hours	29			
Semester 4						
	Code	**Course**	**L**	**T**	**P**	**Credits**
1	ES 211	Numerical Methods	3	0	2	4
2	CE 202	Mechanics of Materials	3	1	0	4
3	CE 203	Engineering Surveying	2	0	2	3
4	CE 204	Fluid Mechanics	3	0	2	4
5	CE 205	Concrete Technology	2	0	2	3
6	CE 206	Construction Technology and Drawing	2	0	2	3
7	SE 203	Design Thinking	1	0	2	2
8	FL 204	French Language & Culture - IV	0	2	0	0
		Total Credits				**23**
		Total contact hours	30			

Subject to Revision

Semester 5

	Code	Course	L	T	P	Credits
1	MA 304	Mathematics - IV	3	1	0	4
2	ES 312	Introduction to Materials Sciences	2	0	2	3
3	CE 307	Computing Lab	1	0	4	3
4	CE 308	Structural Analysis	3	1	0	4
5	CE 309	Soil Mechanics	3	0	2	4
6	CE 310	Water Resources Engineering	3	0	0	3
7	HS-E1	HSS + Mgmt. - Elective – I	2	0	0	2
8	FL 305	French Language & Culture - V	0	2	0	0
		Total Credits				**23**
		Total contact hours	29			

Semester 6

	Code	Course	L	T	P	Credits
1	CE311	Reinforced Concrete Design	3	1	0	4
2	CE 312	Environmental Engineering	2	0	2	3
3	CE 313	Transportation Engineering	3	0	2	4
4	CE 314	Foundation Engineering	3	0	0	3
5	PR 301	Third Year Team Project	0	0	6	3
6	E1	Elective - I	3	0	0	3
7	HS-E2	HSS + Mgmt. - Elective – II	2	0	0	2
8	FL 306	French Language & Culture - VI	0	2	0	0
		Total Credits				**22**
		Total contact hours	30			

Subject to Revision

Semester 7						
	Code	**Course**	**L**	**T**	**P**	**Credits**
1	CE 415	Design of Steel Structures	3	1	0	4
2	CE 416	Construction Planning and Management	2	0	0	2
3	HS-E3	HSS + Mgmt. - Elective - III	2	0	0	2
4	E2	Elective – II	3	0	0	3
5	E3	Elective – III	3	0	0	3
6	PR 402	Year-4 Project I	0	1	4	3
7	FL 407	French Language & Culture - VII	0	2	0	0
		Total Credits				**17**
		Total contact hours	26			
Semester 8						
	Code	**Course**	**L**	**T**	**P**	**Credits**
1	E4	Elective – IV	3	0	0	3
2	E5	Elective – V	3	0	0	3
3	PR 403	Year-4 Project II	0	5	8	9
4	FL 408	French Language & Culture -VIII	0	2	0	0
		Total Credits				**15**
		Total contact hours	19			

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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 Continnum 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

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24	CE 475	Dynamics of Structures	3	0	0	3
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 457	Deep Learning	3	0	0	3
33	CS 460	Object oriented Programing	3	0	0	3
34	ME 452	Introduction to Operation Research	3	0	0	3
35	ME 460	Alternative Energy Sources	3	0	0	3
36	ME 469	Computational Fluid Dynamics	3	0	0	3
37	ME 470	Robotics: Dynamics and Control	3	0	0	3
38	MA 450	Numerical Linear Algebra	3	0	0	3
39	MA 451	Meshfree Methods	3	0	0	3
40	MA 452	Boundary Element Method and Boundary Integral Equations	3	0	0	3
41	MA 453	PDE Based Image Processing	3	0	0	3
42	MA 454	Topology and Operator Theory	3	0	0	3
43	MA 455	Infinite dimensional Control Theory	3	0	0	3
44	MA 456	Bayesian Statistics	3	0	0	3
45	MA 457	Financial Mathematics	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

Subject to Revision