D. Y. Patil College of Engineering and Technology, Kolhapur Department of Chemical Engineering Curriculum Comparison for DYP and AICTE			
Course Code	**Category**	**AICTE Breakup of Credits**	**Chemical Dept.**
HSMC	**Humanities and Social Science including Management Courses**	**12**	**04 (FY)+07=11**
BSC	**Basic Science Courses**	**25**	**16 (FY) +11=27**
ESC	**Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc.**	**24**	**18 (FY) +08=26**
PCC-CHE	**Professional core courses**	**48**	**69**
PEC-CHE	**Professional Elective courses relevant to chosen specialization/branch**	**18**	**12**
OEC-CHE	**Open Subjects-Elective from other technical and/or emerging subjects**	**18**	**8**
PROJ	**Project work, seminar and internship in industry or appropriate work place/ academic and research institution in India/abroad**	**15**	**7**
MC	**Mandatory Courses (Environmental Science, Induction Program, Indian constitution, Essence of Indian Knowledge Tradition)**	**(Non-Credit)**	**--**
LC	**Laboratory Courses**		**--**
	Total	**160**	**160**
	Total Credits 38(First Year) + (Chemical Department) 122		

Second Year B.Tech. Chemical Engineering

Semester III

Sr. No.	Course Code	Course Type	Name of the Course	Teaching Scheme per Week				Total Marks	Evaluation Scheme			
				Lecture Hours	Tutorial Hours	Practical Hours	Credits		Type	Max. Marks	Min. for Passing	
1	201CHL201	BSC	Engineering Mathematics - III	3	--	--	3	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
2	201CHL202	BSC	Industrial & Engineering Chemistry - I	3	--	--	3	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
3	201CHL203	PCC	Mechanics of Material	3	--	--	3	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
4	201CHL204	PCC	Fluid Flow Operations	3	--	--	3	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
5	201CHL205	PCC	Mechanical Unit Operations	3	--	--	3	100	ISE	20	20	40
									MSE	30		
									ESE	50	20	
6	201CHP202	BSC-LC	Industrial & Engineering Chemistry - I Laboratory	--	--	2	1	50	ISE	25	10	20
									ESE(POE)	25	10	
7	201CHP203	PCC-LC	Mechanics of Material Laboratory	--	--	2	1	25	ISE	25	10	10
8	201CHP204	PCC-LC	Fluid Flow Operations Laboratory	--	--	2	1	50	ISE	25	10	20
									ESE(POE)	25	10	
9	201CHP205	PCC-LC	Mechanical Unit Operations Laboratory	--	--	2	1	50	ISE	25	10	20
									ESE(POE)	25	10	
10	201CHMC3	MC	Environmental Studies	2	--	--	--	50				20
			Total:	**17**	**0**	**8**	**19**	**725**		**725**		
				25								

Second Year B.Tech. Chemical Engineering

Semester IV

Sr. No.	Course Code	Course Type	Name of the Course	Teaching Scheme per Week				Total Marks	Evaluation Scheme			
				Lecture Hours	Tutorial Hours	Practical Hours	Credits		Type	Max. Marks	Min. for Passing	
11	201CHL 206	ESC	Computer Techniques in Chemical Engineering	3	--	--	3	100	ISE MSE ESE	20 30 50	20 20	40
12	201CHL 207	BSC	Industrial & Engineering Chemistry - II	3	--	--	3	100	ISE MSE ESE	20 30 50	20 20	40
13	201CHL 208	PCC	Chemical Process Calculations	3	1	--	4	100	ISE MSE ESE	20 30 50	20 20	40
14	201CHL 209	PCC	Heat Transfer Operations	3	--	--	3	100	ISE MSE ESE	20 30 50	20 20	40
15	201CHL 210	ESC	Chemical Engineering Thermodynamics - I	3	--	--	3	100	ISE MSE ESE	20 30 50	20 20	40
16	201CHP 207	BSC-LC	Industrial & Engineering Chemistry - II Laboratory	--	--	2	1	50	ISE ESE(POE)	25 25	10 10	20
17	201CHP 209	PCC-LC	Heat Transfer Laboratory	--	--	2	1	50	ISE ESE(POE)	25 25	10 10	10
18	201CHP 211	PCC-LC	Fluid Flow Machinery Laboratory	--	--	2	1	50	ISE ESE(POE)	25 25	10 10	20
19	201CHP 206	ESC-LC	Computer Techniques Laboratory	--	--	2	1	50	ISE	50	20	20
20	201CHMC 4	MC	Professional Skill Development	2	--	--	--	--				
			Total:	**17**	**1**	**8**	**20**	**700**		**700**		
				26								

*** Internship Guidelines**

• The students are expected to undergo 4 to 6 week internship in the industry and work on the area as specified by the industry. The work should be assigned, monitored and evaluated by the concerned industry expert, based on the report by the students.

• The department has to assign one faculty mentor who has to communicate with industry and monitor the internship related work, periodically.

• The weightage of the evaluation will be as under.
Industry Expert / Supervisor: 70%
Department and faculty: 30%
The evaluation should include presentations and submission of reportsto the department at the beginning of the subsequent semester.

• The internship can be availed by the students during the summer vacations after completion of Semester IV or Semester VI.The credits of internship will be considered in semester VII.

• The industry expert / supervisor is expected to assign the work worth maximum 100 to 120 hrs. for 4 weeks duration and should monitor and evaluate periodically

• At the completion of the internship work the student is expected to prepare a report on the work done and get certified from the industry expert.

Third Year B.Tech. Chemical Engineering **Semester V**												
Sr. No.	**Course Code**	**Course Type**	**Name of the Course**	**Teaching Scheme per Week**				**Total Marks**	**Evaluation Scheme**			
				Lecture Hours	**Tutorial Hours**	**Practical Hours**	**Credits**		**Type**	**Max. Marks**	**Min. for Passing**	
1	201CHL301	PCC	Mass Transfer Operations- I	3	--	--	3	100	ISE MSE ESE	20 30 50	20 20	40
2	201CHL302	PCC	Chemical Engineering Thermodynamics -II	3	--	--	3	100	ISE MSE ESE	20 30 50	20 20	40
3	201CHL303	PCC	Chemical Equipment Design	3	--	--	3	100	ISE MSE ESE	20 30 50	20 20	40
4	201CHL 304	PCC	Process Instrumentation & Instrumental Methods of Analysis	3	--	--	3	100	ISE MSE ESE	20 30 50	20 20	40
5	201CHL 305	PEC	Environmental Engineering and Plant Utilities/ Advance Computational Techniques / Industrial Economics, Management & Entrepreneurship	3	--	--	3	100	ISE MSE ESE	20 30 50	20 20	40
6	201CHP 301	PCC-LC	Mass Transfer Operations-I Laboratory	-	--	2	1	50	ISE ESE(POE)	25 25	10 10	20
7	201CHP 303	PCC-LC	Chemical Equipment Design Laboratory	--	--	2	1	50	ISE ESE(OE)	25 25	10 10	20
8	201CHP 304	PCC-LC	Process Instrumentation & Instrumental Method of Analysis Laboratory	--	--	2	1	50	ISE ESE(POE)	25 25	10 10	20
9	201CHP 306	PROJ	Mini Project	--	--	2	1	50	ISE	50	20	20
10	201CHMC 5	MC	Introduction to Chemical Process Simulation & MATLAB	2	--	--	--	--				
			Total:	**17**	**0**	**8**	**19**	**700**		**700**		
				25								

Third Year B.Tech. Chemical Engineering **Semester VI**												
Sr. No.	**Course Code**	**Course Type**	**Name of the Course**	**Teaching Scheme per Week**				**Total Marks**	**Evaluation Scheme**			
				Lecture Hours	**Tutorial Hours**	**Practical Hours**	**Credits**		**Type**	**Max. Marks**	**Min. for Passing**	
11	201CHL 307	PCC	Mass Transfer Operations- II	3	--	--	3	100	ISE MSE ESE	20 30 50	20 20	40
12	201CHL 308	PCC	Chemical Process Control	3	--	--	3	100	ISE MSE ESE	20 30 50	20 20	40
13	201CHL 309	PCC	Chemical Reaction Engineering - I	3	--	--	3	100	ISE MSE ESE	20 30 50	20 20	40
14	201CHL 310	PCC	Chemical Process Technology	3	--	--	3	100	ISE MSE ESE	20 30 50	20 20	40
15	201CHL 311	OEC	Industrial Safety & Act / Research Methodology	3	1	--	4	100	ISE MSE ESE	20 30 50	20 20	40
16	201CHP 307	PCC-LC	Mass Transfer Operations- II Laboratory	--	--	2	1	50	ISE ESE(POE)	25 25	10 10	20
17	201CHP 308	PCC-LC	Chemical Process Control Laboratory	--	--	2	1	50	ISE ESE(POE)	25 25	10 10	20
18	201CHP 309	PCC-LC	Chemical Reaction Engineering -I Laboratory	--	--	2	1	50	ISE ESE(POE)	25 25	10 10	20
19	201CHP 312	ESC-LC	Computational Techniques Laboratory	--	--	2	1	50	ISE	50	20	20
			Total:	**15**	**1**	**8**	**20**	**700**		**700**		
				24								

Final Year B.Tech. Chemical Engineering **Semester VII**												
Sr. No.	**Course Code**	**Course Type**	**Name of the Course**	**Teaching Scheme per Week**				**Total Marks**	**Evaluation Scheme**			
				Lecture Hours	**Tutorial Hours**	**Practical Hours**	**Credits**		**Type**	**Max. Marks**	**Min. for Passing**	
1	201CHL 401	PCC	Chemical Reaction Engineering- II	3	--	--	3	100	ISE MSE ESE	20 30 50	20 20	40
2	201CHL 402	PCC	Chemical Process Design	3	--	--	3	100	ISE MSE ESE	20 30 50	20 20	40
3	201CHL 403	PCC	Modeling & Simulation	3	--	--	3	100	ISE MSE ESE	20 30 50	20 20	40
4	201CHL 404	PEC	Petroleum Refinery Engg/ Biotechnology /Optimization Techniques in Chemical Engineering	3	--	--	3	100	ISE MSE ESE	20 30 50	20 20	40
5	201CHL 405	OEC	Renewable Energy Resources/ Energy Audit & Recovery	3	1	--	4	100	ISE MSE ESE	20 30 50	20 20	40
6	201CHP 401	PCC-LC	Chemical Reaction Engineering II Laboratory	--	--	2	1	50	ISE ESE(POE)	25 25	10 10	20
7	201CHP 402	PCC-LC	Chemical Process Design Laboratory	--	--	2	1	50	ISE ESE(OE)	25 25	10 10	20
8	201CHP 403	PCC-LC	Modeling & Simulation Laboratory	--	--	2	1	50	ISE ESE(OE)	25 25	10 10	20
9	201CHP 406	PROJ	* Internship	--	--	--	4	50	ISE	50	20	20
10	201CHP 407	PROJ	Project Phase I	--	--	2	1	50	ISE	50	20	20
			Total:	**15**	**1**	**8**	**24**	**750**		**750**		
				24								

Final Year B.Tech. Chemical Engineering **Semester VIII**												
Sr. No.	**Course Code**	**Course Type**	**Name of the Course**	**Teaching Scheme per Week**				**Total Marks**	**Evaluation Scheme**			
				Lecture Hours	**Tutorial Hours**	**Practical Hours**	**Credits**		**Type**	**Max. Marks**	**Min. for Passing**	
11	201CHL 408	PCC	Transport Phenomena	3	1	--	4	100	ISE MSE ESE	20 30 50	20 20	40
12	201CHL 409	HSMC	Chemical Process Economics and Project Management	3	--	--	3	100	ISE MSE ESE	20 30 50	20 20	40
13	201CHL 410	HSMC	Chemical Processes and Green Technology	3	--	--	3	100	ISE MSE ESE	20 30 50	20 20	40
14	201CHL 411	PEC	Petrochemical Technology/ Distillation/ Bio Chemical Engineering	3	--	--	3	100	ISE MSE ESE	20 30 50	20 20	40
15	201CHL 412	PEC	Energy Conservation & Recovery/ Polymer Reaction Engineering / Operational Research	3	--	--	3	100	ISE MSE ESE	20 30 50	20 20	40
16	201CHP 410	HSMC-LC	Chemical Processes and Green Technology Laboratory	--	--	2	1	50	ISE ESE(POE)	25 25	10 10	20
17	201CHP 413	PCC-LC	Advanced Separation Processes Laboratory	--	--	2	1	50	ISE ESE(POE)	25 25	10 10	20
	201CHP414	PCC-LC	Chemical Process Simulation Laboratory			2	1	50	ISE	50	20	20
18	201CHP 414	PROJ	Project Phase II	--	--	2	1	100	ISE ESE(POE)	50 50	20 20	40
			Total:	**15**	**1**	**8**	**20**	**750**		**750**		
				24								

List of Elective					
Open Elective I Sem VI	Open Elective II Sem VII	Professional Elective I Sem V	Professional Elective II Sem VII	Professional Elective III Sem VIII	Professional Elective IV Sem VIII
Industrial Safety & Act / Research Methodology	Renewable Energy Resources / Energy Audit & Recovery	Environmental Engineering and Plant Utilities/ Advance Computational Techniques / Industrial Economics, Management & Entrepreneurship	Petroleum Refinery Engg / Biotechnology/ Optimization Technique in Chemical Engineering	Petrochemical Technology / Distillation / Bio Chemical Engineering	Energy Conservation & Recovery/ Polymer Reaction Engineering / Operational Research

Theory course assessment:

The Theory course assessment is to be done on the basis of ISE (In Semester Evaluation), MSE and ESE. The weightage of components are as follows.

ISE	MSE	ESE
20%	**30%**	**50%**

*** In Semester Evaluation (ISE) : Theory20 marks**

ISE – I and ISE – II can be conducted by using following parameters

1) Online test (on Moodle)
2) Surprise test
3) Open book exam
3) ICT based Active learning method
4) Self learning topic
5) Case study
6) Demonstrations
7) Seminars
8) Assignments

* **In Semester Evaluation (ISE) : Lab Courses 25 marks:** Lab assessment is continuous assessment method in which faculty has to evaluate student's experiments based upon defined rubrics only and shown to the students.

ISE: In Semester Evaluation MSE: Mid Semester Examination ESE: End Semester Examination

***End Semester Examinations (ESE) 50 marks :-**

ESE will be conducted on entire syllabus for 100 marks 3 hours duration and converted to 50 marks.

*** Theory Examination will be conducted for 100 marks and then it will be converted into 50 marks for evaluation.**

*** OE : Oral Examination * POE : Practical Oral Examination**