Study & Evaluation Scheme

of

In Collaboration with

Bachelor of Technology

(Computer Science & Engineering)
Specialization in Application Development using
Cloud and Analytics Platforms
[Applicable w.e.f. Academic Session – 2019-20 till revised]
[As per CBCS guidelines given by UGC]

TEERTHANKER MAHAVEER UNIVERSITY
N.H.-24, Delhi Road, Moradabad, Uttar Pradesh-244001
Website: www.tmu.ac.in

Credit Category Distribution:

Minimum 196 credits required, out of maximum 180 credits offered in the programme, for the award of B.Tech degree. However, in each category other than core, the criteria to pass are given below:

S.No.	Type of Course	Credit Hours	Total Credits
B.Tech : Four-Year (8-Semester) CBCS Programme		
Basic Structure: Distribution of Courses		
1	Professional Core Courses (PCC)	22Courses of 3 Credit Hrs. each (Total Credit Hrs. 22X3) 1 Courses of 4 Credit Hrs. each (Total Credit Hrs. 1X4)	70
2	Professional Elective Courses (PEC)	5 Courses of 3 Credit Hrs. each (Total Credit Hrs. 5X3) 1 Courses of 1 Credit Hrs. each (Total Credit Hrs. 1x1)	16
3	Basic Science Courses (BSC)	4 Courses of 4 Credit Hrs. each (Total Credit Hrs. 4X4) 1 Courses of 3 Credit Hrs. each (Total Credit Hrs. 1X3)	19
4	Engineering Science Courses (ESC)	2 Courses of 4 Credit Hrs. each (Total Credit Hrs. 2X4)	08
5	Open Elective Courses (OEC)	2 Courses of 3 Credit Hrs. each (Total Credit Hrs. 2X3)	06
6	Humanities And Social Science Courses (HSMC)	5 Courses of 3 Credit Hrs. each (Total Credit Hrs. 5X3) 2 Courses of 2 Credit Hrs. each (Total Credit Hrs. 2X2) 1 Courses of 4 Credit Hrs. each (Total Credit Hrs. 1X4)	23
7	Project / Industrial Training/Seminar (PROJ)	1 Courses of 6 Credit Hrs. each (Total Credit Hrs. 1X6) 3 Courses of 2 Credit Hrs. each (Total Credit Hrs. 3X2) 2 Courses of 4 Credit Hrs. each (Total Credit Hrs. 2X4)	20
8	Mandatory Courses (MC)	1 Courses of 3 Credit Hrs. each (Total Credit Hrs. 1X3)	3
9	Laboratory Courses (LC)	17 Courses of 1 Credit Hrs. each (Total Credit Hrs. 17X1) 7 Courses of 2 Credit Hrs. each (Total Credit Hrs. 7X2)	31
10	Value Added Audit Course (VAC)	6 Courses of 0 Credit Hrs. each (Total Credit Hrs. 6X0)	0
	Total Credits		**196**

Contact hours include work related to Lecture, Tutorial and Practical (LTP), where our institution will have flexibility to decide course wise requirements.

B. Choice Based Credit System (CBCS)

Choice Based Credit System (CBCS) is a versatile and flexible option for each student to achieve his target number of credits as specified by the UGC and adopted by our University.

The following is the course module designed for the B.Tech (Computer Science & Engineering) program:

Professional Core Course (PCC): Professional core courses of B.TECH (CSE) program will provide a holistic approach to computer education, giving students an overview of the field, a basis to build and specialize upon. These core courses are the strong foundation to establish computer knowledge and provide broad multi-disciplined knowledge can be studied further in depth during the elective phase.

The core courses will provide more practical-based knowledge, case-based lessons and collaborative learning models. It will train the students to analyze, decide, and lead-rather than merely know-while creating a common student experience that can foster deep understanding, develop decision-making ability and contribute to the society at large.

A wide range of core courses provides groundwork in the basic computer disciplines: programming languages, Database, Web Programming, Mobile Applications, Big data, Data Mining, Machine Learning etc.

The integrated foundation is important for students because it will not only allow them to build upon existing skills, but they can also explore career options in a range of industries, and expand their understanding of various computer fields.

HSMC – (Humanities and Social Sciences including Management courses): As per the AICTE guidelines of Choice Based Credit System (CBCS) for all Universities, including the private Universities, the ***Humanities and Social Sciences including Management courses*** are actually Ability Enhancement Compulsory Course (AECC) which is designed to develop the ability of students in communication (especially English) and other related courses where they might find it difficult to communicate at a higher level in their prospective job at a later stage due to lack of practice and exposure in the language, etc. Students are motivated to learn the theories, fundamentals and tools of communication which can help them develop and sustain in the corporate environment and culture. We offer five HSMC courses of 3 credits, one HSMC courses of 4 credits and two courses of 2 credits in different semesters of engineering course.

Basic Science Course (BSC): Basic Science Course of B.TECH (CSE) program will provide a basic foundation to build the knowledge in the field of engineering and science. The BSC consists of courses like mathematics, physics and chemistry.

Engineering Science Course (ESC): Engineering Science Course of B.TECH (CSE) program will provide a basic foundation of the various field of engineering like Electrical, Electronics, Mechanical and Civil. These ESC courses has been placed in Semester-I & II and total 14 credits has been assigned with 2 Courses of 4 Credit, 2 Courses of 1 Credit and 2 courses of 2 credit. .

Open Elective Course (OEC): Open Elective is an interdisciplinary additional subject that is compulsory in the seven and eight semester of a program. The score of Generic Elective is counted in your overall aggregate marks under Choice Based Credit System (CBCS). Each Generic Elective paper will be of 3 Credits and students will have the choice of taking 2 OEC: 1 each in Semester VII & VIII. Each student has to take Open Electives from department other than the parent department. Core / Discipline Specific Electives will not be offered as Generic Electives.

Mandatory Course (MC): This is a compulsory course that does not have any choice and will be of 3 credits. Each student of B.TECH (CSE) program has to compulsorily pass the Environment Studies course and acquire 3 credits.

Value Added Course (VAC): A Value Added Course is a non-credit audit course which is basically meant to enhance general ability of students in areas like soft skills, quantitative aptitude and reasoning ability - required for the overall development of a student and at the same time crucial for industry/corporate demands and requirements. The student possessing these skills will definitely develop acumen to perform well during the recruitment process of any premier organization and will have the desired confidence to face the interview. Moreover, these skills are also essential in day-to-day life of the corporate world. The aim is to

SEMESTER VII

S.N.	Category Code	Course Code	Course Name	Periods			Credit	Evaluation Scheme		
				L	T	P		Internal	External	L
1.	PCC-XIX	IBD 715	Spring Framework	3	0	0	3	40	60	100
2.	PCC-XX	ECS 703	Cryptography & Network Security	3	0	0	3	40	60	100
3.	PCC-XXI	IBD713	Advanced RDBMS	3	0	0	3	40	60	100
4.	PCC-XXII	*IBD716	Artificial Intelligence	3	0	0	3	40	60	100
5.	PEC-III	Professional Elective Course-III		3	0	0	3	40	60	100
6.	PEC-IV	Professional Elective Course-IV (Lab)		0	0	2	1	50	50	100
7.	LC-XXI	IBD755	Spring Framework (Lab)	0	0	2	1	50	50	100
8.	LC-XXII	IBD753	Advanced RDBMS (Lab)	0	0	2	1	50	50	100
9.	LC-XXIII	IBD756	Artificial Intelligence (Lab)	0	0	4	2	50	50	100
10.	PROJ-IV	ECS 791	Industrial Training-II	0	0	0	4	50	50	100
11.	PROJ-V	ECS 799	Project Work Phase –I	0	0	8	4	50	50	100
12	OEC-I		Open Elective- I	3	0	0	3	40	60	100
			Total	18	0	18	31	540	660	1200

SEMESTER VIII

S. No	Course Category	Course Code	Course Name	Periods			Credit	Evaluation Scheme		
				L	T	P		Internal	External	Total
1	HSMC-VIII	EHM801	Project Management for Engineers	3	0	0	3	40	60	100
2	PCC-XXIII	ECS812	Big Data Analytics	3	0	0	3	40	60	100
3	PEC-V	Professional Elective Course-V		3	0	0	3	40	60	100
4	PEC-VI	Professional Elective Course-VI		3	0	0	3	40	60	100
5	LC-XXIV	ECS855	Big Data Analytics (Lab)	0	0	2	1	50	50	100
6	PROJ-VI	ECS899	Project Work Phase- 2	0	0	12	6	50	50	100
7	OEC-II		OPEN ELECTIVE -II	3	0	0	3	40	60	100
	Total			15	0	14	22	300	400	700