

Study & Evaluation Scheme of

Bachelor of Science (Hons.) (Mathematics)

[Applicable for Academic Session 2019-20]



TEERTHANKER MAHAVEER UNIVERSITY

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Program Structure-B.Sc. (H) Mathematics

A. Introduction:

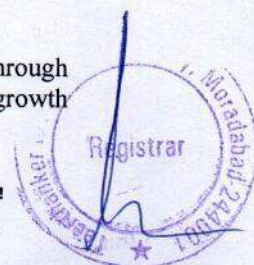
B.Sc. (H) Mathematics is an undergraduate degree program. Mathematics is the branch of structure, space, quantity, and change. This course provides in-depth knowledge about trigonometry, geometry, calculus and numerous other theories in Mathematics or respective disciplines, for example, computer science or statistics additionally to study of the normal Bachelor of Science subjects such as Physics and Chemistry. The duration of the course is three years and the syllabus for the course is divided into six semesters. This Honours course is an important and valuable one that provides opportunities to the candidates of taking some of the subjects of a Master's degree. After completing the course, they can go to many fields to obtain jobs.

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.Sc (H) program:

- **Core competency:** A course, which should compulsorily be studied by a candidate as a core requirement is termed as a Core course. We are offered core course in all semesters like operation research, Trigonometry & Differential Calculus, Algebra & matrix, Differential Calculus & Integral calculus etc with the 5 & 6 credit of each.
- **Program/Discipline Specific Elective Course (DSEC):** A graduate student is expected to be capable of demonstrating comprehensive knowledge and understanding of both theoretical and experimental/applied mathematics knowledge in various fields of interest like Statistics Software & Tools, Numerical Techniques & its lab etc.
- **Skilled communicator:** The course curriculum incorporates basics and advanced training in order to make a graduate student capable of expressing the subject through technical writing as well as through oral presentation.
- **Critical thinker and problem solver:** The course curriculum also includes components that can be helpful to graduate students to develop critical thinking ability by way of solving problems/numerical using basic & advance knowledge and concepts of mathematics.
- **Sense of inquiry:** It is expected that the course curriculum will develop an inquisitive characteristics among the students through appropriate questions, planning and reporting experimental investigation.
- **Skilled project manager:** The course curriculum has been designed in such a manner as to enabling a graduate student to become a skilled project manager by acquiring knowledge about mathematical project management, writing, planning, study of ethical standards and rules and regulations pertaining to scientific project operation.
- **Ethical awareness/reasoning:** A graduate student requires understanding and developing ethical awareness/reasoning which the course curriculums adequately provide.
- **Lifelong learner:** The course curriculum is designed to inculcate a habit of learning continuously through use of advanced ICT technique and other available techniques/books/journals for personal academic growth as well as for increasing employability opportunity.



- **Value Added Course (VAC):** A Value Added Course is a non-credit 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 nurture every student for making effective communication, developing aptitude and a general reasoning ability for a better performance, as desired in corporate world. There shall be four courses of Aptitude in Semester I, II, III & IV semesters and two courses of Soft Skills in III & IV Semesters and will carry no credit, however, it will be compulsory for every student to pass these courses with minimum 45% marks to be eligible for the certificate. These marks will not be included in the calculation of CGPI. Students have to specifically be registered in the specific course of the respective semesters.
- **Skill Enhancement Course:** This course may be chosen from a pool of courses designed to provide value-based and/or skill-based knowledge. We offer two SECs course as Lab & theory- one in III Semester & another is IV Semester. SEC will carry 2 & 4 credits each.
- **Open Elective Course (OEC):** Open Elective is an interdisciplinary additional subject that is compulsory in a program. The score of Open Elective is counted in the overall aggregate marks under Choice Based Credit System (CBCS). Each Open Elective paper will be of 3 Credits in V semesters. Each student has to take Open/Generic Electives from department other than the parent department. Core / Discipline Specific Electives will not be offered as Open 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.Sc (H). Program has to compulsorily pass the Environmental Studies.

C. Programme Outcomes (POs)

The learning and abilities or skills that a student would have developed by the end of three-years B.Sc (H) Programs:

PO – 1	Critical thinking - This is based on the assumption, thinking and actions. These assumptions are tested for accuracy & validity taking into consideration the ideas and decisions. These ideas may be collected from intellectual organization or personal from different prospectus.
PO – 2	Effective communication - Effective communication an important tool to enhance the effectiveness of learning among the students. The speaking, reading & writing must be followed correctly.
PO – 3	Social interaction –Social interaction also play important role to reads the conclusion in group settings.
PO – 4	Effective citizenship - This contributes in the national development and promptness to achieve the goals. It develops awareness through volunteering.
PO – 5	Ethics - It has direct impact to recognize the different value systems. It gives proper understanding in different dimension for making decisions.
PO – 6	Environment and sustainability - Essential to understand the environmental issues & sustainable development.
PO – 7	Self directed & lifelong learning – Acquire the ability to engage in independent and life- long learning in broad spectrum including socio technological changes.
PO- 8	Problem analysis & Solving: Identify, formulate, research literature, and analyze complex basic sciences problems reaching substantiated conclusions using first principles of mathematics, natural sciences.



B.Sc. (H) (Mathematics)-Semester V

S. No	Category	Course Code	Course	Periods			Credit	Evaluation Scheme		
				L	T	P		Internal	External	Total
1	CC	BAS517	Applied Statistics	5	1	-	6	40	60	100
2	CC	BAS518	Complex Analysis	5	1	-	6	40	60	100
3	DSE		Discipline Specific Elective Course-I	5	1	-	6	40	60	100
4	DSE		Discipline Specific Elective Course-II	5	1	-	6	40	60	100
5	OEC		Open Elective-I	3	-	-	3	40/50	60/50	100
6	PROJ	BAS598	Industrial Training & Presentation	-	-	6	3	50	50	100
7	DGP	BGP511	Discipline & General Proficiency	-	-	-	-	100	-	100
			Total	23	4	6	30	250/260	350/340	600

MOOC Course:

1	MOOC-2	MOOC13	MOOC Program –II (Optional)	-	-	-	2	-	100	100
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B.Sc. (H) (Mathematics)-Semester VI

S. No	Category	Course Code	Course		Periods			Credit	Evaluation Scheme		
					L	T	P		Internal	External	Total
1	CC	BAS619	Graph Theory		5	1	-	6	40	60	100
2	DSE		Discipline Specific Elective Courses	Discipline Specific Elective Course-III	5	1	-	6	40	60	100
3	DSE			Discipline Specific Elective Course-IV	5	1	-	6	40	60	100
4	OEC			Open Elective Course	Open Elective-II	3	-	-	3	40/50	60/50
5	PROJ	BAS698	Project		-	-	16	8	50	50	100
6	DGP	BGP611	Discipline & General Proficiency		-	-	-	-	100	-	100
			Total		18	3	16	29	210/220	290/280	500