

Mission of Mathematics Department

The mission of Mathematics Department is to increase understanding and the ability to apply mathematics through in-depth study and endowing them with broad and diverse knowledge in the mathematical sciences, and to conduct the cutting edge research in Applied Mathematics. Faculty and advanced graduate students will coach undergrad and graduate students to create and upgrade their computational and analytical aptitudes. These aptitudes will create very qualified students who can enter beneficial professions in industry, institutions, and research in Pakistan as well as globally.

Departmental Goals & Objectives

We strive to make an impact on the discipline of Mathematics and on the broader community through the following goals:

- To be a resource in the Mathematical sciences for other disciplines whose own activities have an ever-increasing need for the power of the Mathematics.
- To work closely not only with colleagues from other discipline within Sukkur IBA but also with colleagues from the local schools and community colleges who share the responsibility of ensuring the flow of a mathematically literate and confident generation of new students.
- To embrace the notion such that change such as is manifested in computer technologies and educational reforms can be beneficial enhance learning and enrich the intellectual environment.

Undergraduate Program

➤ BS - Applied Mathematics

Limited access of poor people to quality education in Mathematics and increasing rate of unemployment has resulted in many socio-economic problems in the country. We strongly believe that using modern mathematical techniques and the targeting market and industrial needs, BS Mathematics program can produce more positive result. We will provide a successful BS Mathematics

Program for community development at Sukkur IBA which will prove itself fruitful by bringing the change in the society.

Goals & Objectives of BS-Mathematics

To develop the quantitative skills of students:

- To enhance the knowledge of students to move to higher levels of independent learning
- To utilize Mathematics as a tool in various field of Industrial and Applied Sciences.
- To provide quality education with modern and scientifically tools so that graduates may possess globally outlook
- We take initiative from foundation semester in THP, Regular semester will start from Fall.

Eligibility Criteria for Admission:

- HSC (Pre-Engineering Group) or equivalent with 50% marks.
- Applicant has to appear and qualify SUKKUR IBA written test and interview.

Requirement:

- Duration of program:
- 4 years (8 semesters); students NOT from the Pre-Engineering Group have to attend intensive courses in Mathematics, Physics and Chemistry during the semester breaks of first and second years depending on their deficiencies.
 - Students cannot get the degree of BS before completing 4 years of study.

Total credit hours:	136 (maximum 18 hours per semester)
Compulsory Courses:	6 (11 credit hours)
Humanities Course:	1 (3 credit hours)
Core Courses:	24 (72 credit hours)
Minor Courses:	8 (24 credit hours)
Electives A:	4 (12 credit hours) [Electives in Specialization]
Electives B:	2 (6 credit hours); mathematics courses outside

Class Size: 50 (maximum) for lectures; 25 (maximum) for tutorial and laboratory session.

Drop out policy

- If any student is dropped during 1st or 2nd year of program, he/she can rejoin the program from the 1st semester without appearing in the entry test.
- If any of the students is dropped during 3rd or 4th year of program, he/she may regulate under term back policy.

Mathematics Club

- Mathematics club is the wing of Mathematics department that for inter college competition in Pakistan.
- To enhance the ability to apply Mathematics in various field of Science, Engineering, Economics, Finance, Business etc by taking various Exams, Quizzes, with prizes for the motivation of students.
- Successfully we organized the 1st Mathematics competition among the students of THP 2013. Five laptops are distributed among the top 5 positions for their motivation.
- Successfully we organized the 2nd Mathematics competition among the students of THP 2014. Sixteen laptops are also distributed among the top 3 group for their motivation.
- Intra-University Mathematics Olympiad Competition 2014 at SIBA

COURSES Schema BS - Mathematics

First Year

Semester 1		
Course Code	TITLE	CREDIT HOURS
MTS-	Calculus-1	3 + 0
MTS-	Linear Algebra	3+0
ENG-	Functional English/English Structure I	3 + 0
PHY-	General – A1/Applied Physic I	2 + 1
ECO-	General – B1/Introduction to Micro Economic	3 + 0
HUM-	Islamic Studies	2+0
TOTAL		16 + 1

Semester 2		
Course Code	TITLE	CREDIT HOURS
MTS-	Number Theory	03 + 0
MTS-	Calculus -II	03 + 0
PHY-	General – A II/ Applied Physic II	02 + 1
	General – B II/	02 + 1
MTS-	Discrete Structures	03+0
CSC-	Introduction to ICT/Computer	02+1
HUM-	Pakistan Studies	02+0
Total		20

Learning Outcomes: After completing first year, the student should be able to utilize basic tools for computations in order to solve problems of mathematics

Second Year

Semester 3		
Course Code	TITLE	CREDIT HOURS
ENG-	Communication Skills /Presentation Skills	2 +1
CS-	Introduction to Language	3 + 1
MTS-	Calculus III	3 + 0
ECO-	General -A III/ Introduction to Macro Economic	3 + 0
HUM-	General -B III/ Word History/Math History	2 + 1
Total		16

Semester 4		
Course Code	TITLE	CREDIT HOURS
MTS-	Algebra I	3 + 0
ENG-	English Structure II/ Technical Writing	3 + 0
MTS-	Computing Tools for Mathematics	2+1
STS-	Mathematical Statistics	3 + 0
HUM-	General -A IV/ Introduction to Psychology	2 + 1
HUM-	General -A IV Introduction to Sociology	2 + 1
		18

Learning Outcomes: After completing second year, the student should be able to understand proof and to write a formal proof for theoretical applications.

Third Year

Semester 5		
Course Code	TITLE	CREDIT HOURS
MTS-	Algebra II	3 + 0
MTS-	Vector & Tansor Analysis	3+0
MTS-	Operation Research	3 + 0
	Guest/Students' Seminar I	1 + 0
MTS-	Numerical Analysis	3 + 0
MTS-	Ordinary Differential Equations	3 + 0
MTS-	Real Analysis I	2 + 0
Total		18 + 0

Semester 6		
Course Code	TITLE	CREDIT HOURS
MTS-	Algebra III	3 + 0
MTS-	Classical Mechanics	3 + 0
MTS-	Real analysis II	3 + 0
MTS-	Introduction to Topology	3 + 0
	Guest/Students' Seminar II	1 + 0
MTS-	Partial Differential Equations	3 + 0
Total		16 + 0

Learning Outcomes: After completing third year, the student should know the main branches of mathematics, *i. e.*, analysis, topology, differential equations, mechanics, numerical analysis, probability and statistics and to apply these theories in practical problems.

Fourth Year

Semester 7		
Course Code	TITLE	CREDIT HOURS
MTS-	Elective – A I/ Mathematical Modeling and Simulation	3 + 0
	Elective – A II	3 + 0
CS-	Graph theory	3+0
	Guest/Students' Seminar III	1 + 0
MTS-	Final year Project I	3 + 0
MTS-	Complex Analysis	3+0
Total		16 + 0

Semester 8		
Course Code	TITLE	CREDIT HOURS
	Elective – A III	3 + 0
	Elective – B OR Final year Project II	3 + 0
MTS-	Mathematical Physic	2 +1
	Guest/Students' Seminar IV	1 + 0
MTS-	Optimization Theory	3 + 0
Total		12 + 1

Learning Outcomes: After completing fourth year, the student should choose the field of specialization and write research paper.