



Sukkur Institute of Business Administration

Merit-Quality-Excellence

COURSE SCHEMA

For

Admission in

MS

(Applied Mathematics and Computational Finance)

Spring-2014

MS (Applied Mathematics and Computational Finance)

Duration: Minimum 2 Years & Maximum 4 Years

Semesters: 04

Credit Hours: 30

Sukkur IBA offers MS (in Applied Mathematics and Computational Finance) Program. The MS program in **Applied Mathematics and Computational Finance** prepares students for careers in research, applications, and teaching. Students choose courses from two areas of concentration for their course work: **Applied Mathematics and Computations** and **Mathematics and Computational Finance**. Students are required to successfully qualify eight courses (6 compulsory and 2 electives) each of 3 credit hours duration. On successful completion of MS course work students will be allowed to work on a 06 credit hour thesis on a subject of interest and on the availability of the faculty. The minimum duration of completion of MS Program is 2 years (Four Semesters) and maximum duration is 4 Years and students must pass GAT (General) before applying for the admission or within six months after the admission for completion of the degree.

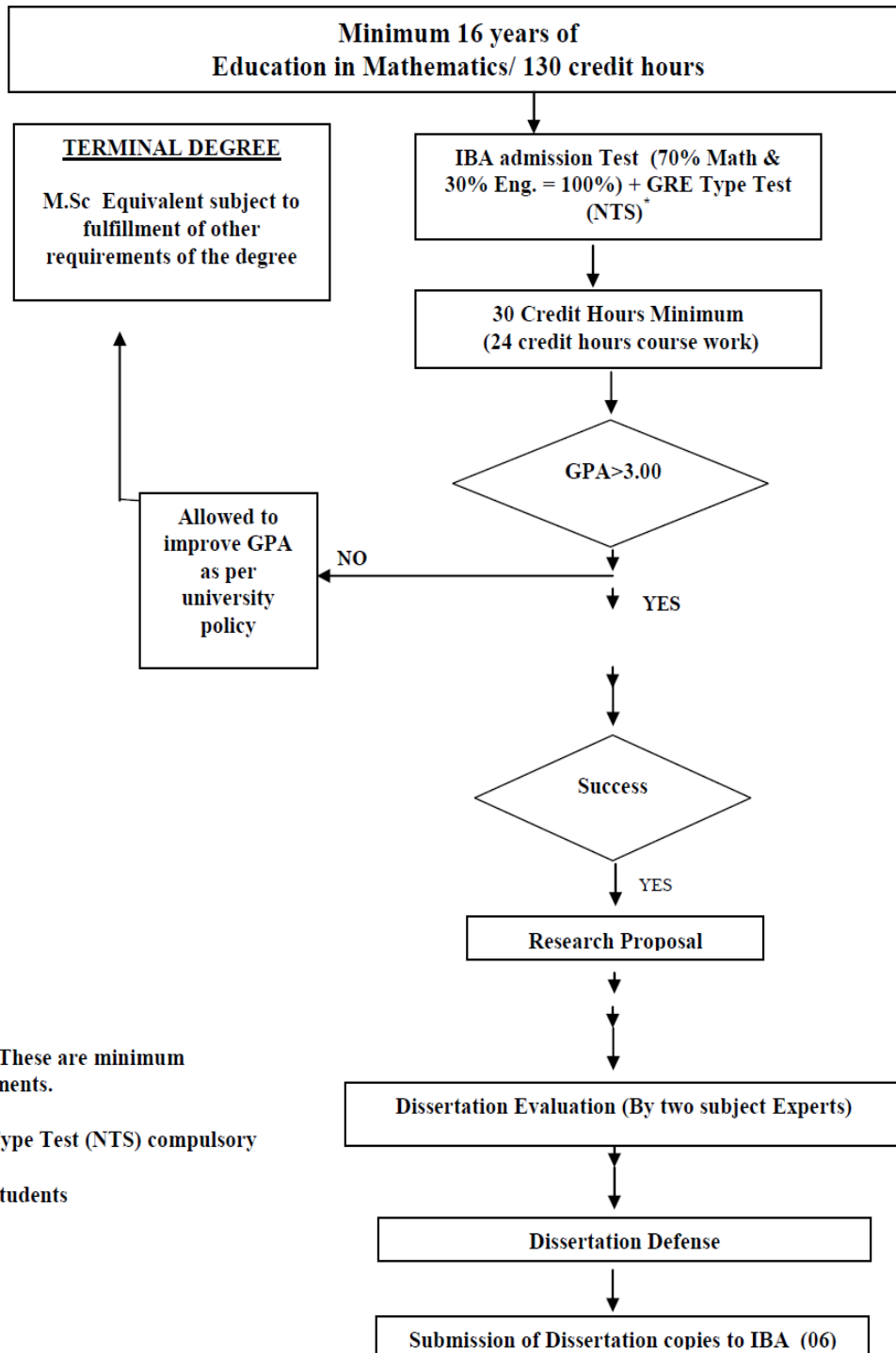
Dissertation and Presentation

The dissertation will be written during Trinity Term on a topic chosen in consultation with your supervisor. It should be no more than 100 pages long and should contain material which, although not necessarily original research, cannot be found elsewhere. Credit will be given for the mathematical and financial content, as well as for the quality of the presentation and the clarity of the writing. Each student must give a 15 minute oral presentation after Trinity Term about his/her dissertation.

Eligibility Criteria

- Applicant must have (BS / M.Sc in Mathematics or 16 Years of Education in relevant field) with at least 1st Division or 2.2 CGPA from any HEC recognized University / Institution.
- Applicant should have passed the NTS (GAT-General test) with a minimum of 50% cumulative score.
- A test equivalent to GRE (General and Subjective) is to be taken by the applicant for admission into MS degree. The test will be organized by the Sukkur IBA. Those applicants who qualify test will appear for the Interview.

Flow chart for minimum criteria for MS Mathematics



NOTE: These are minimum requirements.

* GRE Type Test (NTS) compulsory for all students

Total Credit Hours: (24+6=30)

Distribution of Total Credit Hours (MS with Thesis)

Category of Area	Credit Hours
Core Courses	18
Elective Courses	06
Thesis	06
Total Credit Hours	30

Semester Wise Plan MS (Applied Mathematics and Computational Finance)

Semester I (Credit Hrs.: 06)

Course Code	Course Title	Pre-Req	Credits Hours
MTS-601	Advanced Computational Numerical Analysis (Introduction to research in Mathematics by using software) Maple, Mathematic etc	-----	03
STS-601	Advanced Computational Statistics	-----	03
ENG-601	Academic English	-----	00
Total Credit Hours			06

Semester II (Credit Hrs.: 9)

Course Code	Course Title	(Pre-Req.)	Credits Hours
MTS-602	Advanced Techniques in Computational Mathematics	Advanced Computational Statistics	03
MTS-603	Advanced Computational Techniques for solution of nonlinear equations (ODEs & PEDs)	Advanced Computational Statistics	03
MTS-604	Introduction to Financial Mathematics	-----	03
Total Credit Hours			09

Semester III (Credit Hrs.: 09)

Course Code	Course Title	(Pre-Req.)	Credits Hours
MTS-605	Advanced Mathematical Finance	Introduction to Financial Mathematics	03
MTS-606	Numerical Techniques for Variational Inequalities	-----	03
MTS-607	Numerical methods for Stochastic differential equation	Introduction to Financial Mathematics	03
Total Credit Hours			09

Semester IV (Credit Hrs.: 09)

Course Title	Credits Hours
Thesis	06
Total Credit Hours	06

Elective Courses

For MS in Applied Mathematics and Computational Finance)

Elective Courses for Applied Mathematics

S. No.	Course Code	Course Title	Credit Hours
1	MTS-608	Advanced Mathematics Physics	3
2	MTS-609	Advanced Convex Analysis	3
3	MTS-610	Advanced Optimization Techniques	3
4	MTS-611	Geometric Methods in Mechanics and Physics	3
5	MTS-612	Advanced Modern Algebra with Applications	3
6	MTS-613	Advanced Hilbert Space	3
7	MTS-614	Calculus of Variation	3
8	MTS-615	Advanced Analytical Mechanics	3
9	MTS-616	Advanced nonlinear Dynamics	3

Elective Courses for Computational Finance

S. No.	Course Code	Course Title	(Pre-req)	Credit Hours
1	MTS-617	Advanced Numerical methods for Stochastic differential equation	Numerical methods for Stochastic differential equation	3
2	MTS-618	Numerical Methods 1: Finite difference Methods	MTS-601, MTS-602	3
3	MTS-619	Numerical Methods 2: Monte-Carlo Methods	MTS-601, MTS-602	3

Note: These Elective Courses will be offered on the availability of course instructors and the number of students registered for the course.

- Maximum duration for submission of the thesis proposal and getting approved by the Doctoral Committee is three months from the date of registration.
- Minimum duration for thesis completion is 6 months and maximum duration is 12 months. In case of exceed, the candidate will have to get approval from the Doctoral Committee and he/she will have to pay fees also.
- Thesis is a compulsory requirement for MS degree.
- Supervisor has to give candidate's performance report to the Director & Dean, SIBA and HEC after every 6 months.
- The thesis shall be examined by 3 referees appointed by the Director & Dean, SIBA from a panel of 5 referees suggested by the supervisor(s).
- The reports of the referees shall be scrutinized by the Academic Committee of the SIBA. If the reports declare the thesis to be satisfactory and recommend for the award of MS degree, the Director & Dean, SIBA shall appoint a Board of Examiners for the viva-voce Examination of the candidate to defend his/her thesis.
- The board for the viva-voce examination shall comprise of the Director & Dean, SIBA, one Internal examiner, one External examiner and the supervisor(s) of the candidate.
- On the satisfactory performance of the candidate in the viva-voce examination the Board of Examiners shall recommend to the Academic Committee of SIBA for the award of the degree to the candidate.
- The accepted thesis, its formulation/ invention of commercial interest shall become the property of the SIBA.