



**Nagindas Khandwala College (Autonomous)**

**MKES's Nagindas Khandwala College (Autonomous),  
Gate No 5, Bhavishya Bharat Campus, S. V. Road, Malad (West)  
Mumbai-400 064**

**Program Code: UHCAS**

**Bachelor of Commerce (B.Com.) (Honours) Actuarial Studies**

**Three Year Integrated Honours Programme**

**Six Semesters**

***Course Structure***

**Under Choice Based Credit, Grading and Semester System**

**Academic Year- 2020-2021**

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## 1. Preamble

### **Actuarial Profession & Increasing demand for Actuaries**

The profession of Actuaries was not sufficiently ventured in the past in India due to lack of awareness. The core of actuarial work lies within insurance. Since Insurance industry in India was nationalized for long from 1956-1999, Actuarial studies as a profession could not develop and prosper. With the opening up of the Indian economy and globalization, demand of actuaries increased many-fold in India. The demand of actuaries is rising world over in the sphere of enterprise risk management. Actuaries evaluate, manage and advise on all types of quantifiable risks (including financial, operational financial risks scientifically. They are considered to be the best risk managers as they use their knowledge of business and economics, together with their understanding of probability theory, statistics and investment theory, to provide strategic, commercial and financial advice. Actuaries are the only professionals who focus on estimation of uncertain future liabilities. Only qualified actuaries can certify such liabilities across the globe. Actuarial knowledge has a critical utility in data analytics and enterprise risk management.

Speaking at the Virtual Actuarial Conclave 2021, on 10<sup>th</sup> March,2021, IRDAI Chairman Subash Chandra Khuntia said: “If we look at the number of actuaries India has, it is not adequate for a country of our size. At present, we have only 458 full-fledged actuaries.”

“Looking at the number of insurance companies we have and the size of our insurance business, which is 1.7 per cent of the global insurance industry and considering the fact that we have 60,000 actuaries globally, I think we should at least aspire to have 1,000-1,200 actuaries in the country as soon as possible,” he added. He mentioned that actuaries are needed for insurance sector, banking sector as well as other financial sectors.

Job of Actuaries in the world is considered to be the Best job, mostly it ranks in the top 5 jobs (often Ranked #1) for the last 4 decades. With risk-based capital regime on the anvil, it is estimated that there will be a 30-40 percent increase in number of actuarial positions required by insurers. Demand of actuaries is steadily growing in data analytics. Greater demand would emerge when the industries in India begin employing actuaries for their

risk management function. Globally, majority of actuaries are engaged in risk management.

This Bachelor of Commerce (Honours) – Actuarial Studies Degree Program is designed keeping in mind the latest curriculum of the actuarial profession (that has come in force in 2019) and the skills needed to become job-ready in the field of actuaries and analytics. Detailed coverage of all aspects of the profession will provide students the right blend of knowledge and skills along with Global exposure.

## 1.1 About Khandwala College:

Khandwala College is a multi-faculty institution (Estd. 1983), affiliated to University of Mumbai. It offers 13 UG, 5 PG, 4 Add On, 3 Ph. D programs with 9 Departments and 2 Research Centres imparting education to more than 6500 students. The **Vision** of the institute includes Education for all, Education for the youth and Education for the future of our country.

The **Mission** is to serve the society at large and students belonging to linguistic minority in particular with commitment, dedication and devotion. The **Quality Policy** includes commitment towards imparting **Quality Education to youth**, enabling them to **develop right attitude, professional competence** and inculcating right **ethical values**.

The institution has been awarded “A” Grade (Third Cycle) by National Assessment and Accreditation Council, **Best College** by University of Mumbai (2012), **lead college** for a cluster of colleges, Educational Excellence Award by Indus Foundation, USA and **Best Ensemble Faculty (Academic Brilliance Awards – 2013)** by Education Expo TV’s Research Wing for Excellence in Professional Education & Industry and ISO 9001:2015 certified by TUV Nord. We have been awarded **IMC Ramkrishna Bajaj National Quality Commendation Certificate** in 2013-14. Our college has been awarded Autonomous status from 2016. Khandwala College, as an Autonomous College; is offering a new **Bachelor of Commerce (Honours) Programme Actuarial Studies as a Three Year Integrated Programme – with Six Semesters Course Structure - Under Choice Based Credit, Grading and Semester System.**

## 1.2 Vision and Mission of Khandwala College.

### **Vision:**

- Education for all
- Education for the youth
- Education for the future of our country

**Mission** The college’s focus is on the future of our students irrespective of their gender and place in society. Every student is like a flame reaching out to the brightness of the sun i.e. the bright future of India.

## 2 Objectives

This program of B. Com. (Honours) - Actuarial Studies is structured to provide graduates with practical skills required in international actuarial field. The main objective of B. Com. (Honours) - Actuarial Studies Program are:-

- To provide intensive theoretical & practical knowledge in all aspects of risk management.
- To provide an integrated perspective of management functioning along with a good amount of exposure to real life cases / technical knowhow on crucial aspects of Insurance products pricing and reserving
- To produce bachelors with a strong background in Mathematics, Statistics, Economics, Finance and Analytics to deal with Data Analysis in the areas of Financial Sector such as Insurance, Banking, Capital Market and other Financial Applications in view of sustained growth envisaged in Insurance Industry and KPO industry at large in the Financial sector.
- To develop participants' competencies to identify the possibility of a bad event, or a catastrophe; evaluate a solution to minimize the possibility of said bad event, or catastrophe, from occurring and also analyze the losses, that the risk might bring about, and devise solutions to reduce its consequences to the economy.
- To make program participants job-ready in the profession of actuaries and analytics.
- To provide expert's knowledge to undertake Actuarial profession and become a catalyst in the process of becoming actuary.

### 2.1 Program Outcome:

On successful completion of this program, a participant shall be job-ready in the profession of actuaries and analytics. The participant shall be able to apply techniques of Mathematics, Statistics, Economics, Finance and Analytics to Data Analysis in the areas of Financial Sector such as Insurance, Banking, Capital Market and other Financial Applications in view of sustained growth envisaged in Insurance Industry and KPO

industry at large in the Financial sector.

## **2.2 Program Specific Outcome:**

On successful completion of this program, a participant shall be job-ready in the profession of actuaries and analytics. The participant shall be able to

- understand intensive theoretical & practical aspects of risk management
- develop an integrated perspective of management functioning along with a good amount of exposure to real life cases / technical knowhow on crucial aspects of Insurance products pricing
- shall be able to calculate the probability of a loss event, or a catastrophe; evaluate a solution to minimize the probability of said loss event, or catastrophe, from occurring and also analyze the losses, that the risk might bring about, and create solutions to reduce its consequences to the economy.
- shall be completely prepared to undertake professional examinations in the subjects of CS1A, CS1B, CS2A, CS2B, CM1A, CM1B, CM2A, CM2B, CB1, CB2, CB3, CP2, CP3, SP1, SP2, SP4, SP5, SP7 of Institute and Faculty of Actuaries, UK and equivalent subjects of Institute of Actuaries of India.

### **3. Eligibility, Selection and Admission Criterion:**

Candidates for being eligible for admission to the three-year course leading to the Degree of Bachelor of Commerce (Honours) – Actuarial Studies, shall be required to have passed the Higher Secondary School Certificate Examination (10+2) or equivalent qualification from a recognized Board/ University or Body recognized as equivalent thereof by the Senate of the University, with minimum 50% aggregate marks or equivalent in any Stream.

#### **3.1 Eligibility Criterion:**

- Std. XII passed in any discipline with 50% or more marks on the aggregate and having English as a subject
- Good Communication Skills

#### **3.2 Selection & Admission Criterion for Eligible Candidates:**

- The interested students shall register for Aptitude Test and Interview.
- Reservations as per University rules will be applicable.

The admission of students shall be based on

- Academic and non- academic credentials till date
- Performance in Aptitude Test [comprising of questions in Mathematics/Statistics, English, Logical Reasoning, Analytical Ability], and
- Performance in Personal Interview

#### **3.3 Eligibility for the Award of the Degree:**

A candidate shall be eligible for the award of the Degree only if he / she has undergone the prescribed course of study in Khandwala College affiliated to the University for a period of not less than three academic years, passed the examinations of all the Six Semesters earning 140 credits with letter grade of D or higher (i.e. O/ A+/A/ B+/B/C/D) in core.

#### **3.4 Intake Capacity**

One Division with minimum 60 Students in the first year.

#### **3.5 Fee structure**

The total fees for B.Com. (Honours) Actuarial Studies will be Rs. 1,50,000 p.a.



## 4 Ordinances & Regulations for B. Com. (Honours) Actuarial Studies

### 4.1 General Guidelines:

The Credits are defined in terms of the learner's hours which are divided into two parts such as Actual and Notional. The value of a particular course can be measured in number of Credit Points. The value of One (01) Credit is equal to 15 Hours of learners' load.

The scheme of Examination shall be divided into TWO parts i.e. Continuous Internal Evaluation including Assignment, Projects, Seminars, Case Studies and Class Tests which will be of 40 marks and the Semester End Examinations which will be of 60 marks. The semester wise Credit Points will be varied from course to course but the value of Credits for Under-Graduate Programme shall be of 140 Credits (including 8 extra credits under autonomy).

#### Scheme of Total Credits

Sr. No.	Year	Credits
1	Year 1	44
2	Year 2	44
3	Year 3	44
	Total Credits from Academics	132
	<b>Additional Credits for 2 Certifications (4*2)</b>	8
	Total Credits for Award of Degree	140

#### List of Certifications for Additional Credits

- The courses offered by SoA- USA, CAS-USA, IFoA-UK, IAI-India at relevant time
- IBM-Big Data Analysis, and
- Other Options with Prior Approval by the Faculty

## 4.2 Credit Based Evaluation System Scheme of Examination

### *For F. Y. B. Com. (Honours) in Actuarial Studies*

The performance of the learners shall be evaluated into two components. The first component shall carry 40% marks which will be a Continuous Internal Evaluation while the second component shall carry 60% marks at semester end examination.

The allocation of marks for the Continuous Internal Evaluation 40% and Semester End Examination 60% are as shown below:

#### **Structure of Continuous Internal Evaluation – 40% Weight- 40 Marks**

<b>Sr. No.</b>	<b>Particulars</b>	<b>Marks</b>
1	Two periodic class tests held in the given semester (Best of the TWO) OR A single class test mid-way during the semester	20
2	Subject specific Term Work Module/assessment modes – as decided by the department in the beginning of the semester (like Extension/field/experimental work, Short Quiz; Objective test, lab practical, open book test etc. and written assignments, Case study, Projects, Presentations, Posters and exhibits etc. for which the assessment is to be based on class presentations wherever applicable)	15
3	Active participation in routine class instructional deliveries (and in practical work, tutorial, field work etc. as the case may be)	5
Total		40

**Semester End Examination** will be organized after all modules of the course are taught in the class. It will be a written examination / or as per the needs of the course a practical examination or a combination of both. This examination will be for 60% weight. For all Courses having Practical and Theory Component, Examination will be conducted for total 150 marks, (100 marks for Theory and 50 marks for Practical) which would then be converted into 100 marks.

The assessment of Continuous Internal Evaluation and Semester End Examination as mentioned above for the Semesters I to VI shall be processed by the College and shall

issue the grade cards to them after the conversion of marks into grade as the procedure mentioned below.

To pass a course, the learners shall have to obtain a minimum of 40% marks in aggregate for each course where the course consists of Continuous Internal Evaluation & Semester End Examination. The learner shall obtain minimum of 40% marks (e.g. 16 out of 40) in the Continuous Internal Evaluation and 40% marks in Semester End Examination (e.g. 24 Out of 60) separately, to pass the course and minimum of Grade D in each project, wherever applicable, to pass a particular semester. A learner will be said to have passed the course if the learner passes both the Continuous Internal Evaluation & Semester End Examination.

***For S. Y. B. Com. (Honours) in Actuarial Studies***

The performance of the learners shall be evaluated into two components. The first component shall carry 25% marks which will be a Continuous Internal Evaluation while the second component shall carry 75% marks at semester end examination.

The allocation of marks for the Continuous Internal Evaluation 25% and Semester End Examination 75% are as shown below:

**Structure of Continuous Internal Evaluation – 25 % Weight- 25 Marks**

<b>Sr. No.</b>	<b>Particulars</b>	<b>Marks</b>
1	Two periodical class tests held in the given semester, (Best of the TWO) OR	20
2	Subject specific Term Work Module/assessment modes – as decided by the department in the beginning of the semester (like Extension/field/experimental work, Short Quiz; Objective test, lab practical, open book test etc. and written assignments, Case study, Projects, Posters and exhibits etc. for which the assessment is to be based on class presentations wherever applicable)	20
3	Active participation in routine class instructional deliveries (and in practical work, tutorial, field work etc. as the case may be)	5
Total		25

**Semester End Examination** will be organized after all modules of the course are taught in the class. It will be a written examination / or as per the needs of the course a practical examination or a combination of both. This examination will be for 75 % weight. For all Courses having Practical and Theory Component, Examination will be conducted for total 150 marks, (100 marks for Theory and 50 marks for Practical) which would then be converted into 100 marks.

The assessment of Continuous Internal Evaluation and Semester End Examination as mentioned above for the Semesters I to VI shall be processed by the College – ‘Institutions of their Learners’ and issue the grade cards to them after the conversion of marks into grade as the procedure mentioned below.

The learners to pass a course shall have to obtain a minimum of 40% marks in aggregate for each course where the course consists of Continuous Internal Evaluation & Semester End Examination. The learner shall obtain minimum of 40% marks (e.g. 10 out of 25) in the Continuous Internal Evaluation and 40% marks in Semester End Examination (e.g. 30 Out of 75) separately, to pass the course and minimum of Grade D in each project, wherever applicable, to pass a particular semester. A learner will be said to have passed the course if the learner passes both the Continuous Internal Evaluation & Semester End Examination.

### **Passing Standards**

<b>Grade</b>	<b>Marks %</b>	<b>Grade Points</b>
O	80 & Above	10
A+	70 to 79.99	9
A	60 to 69.99	8
B+	55 to 59.99	7
B	50 to 54.99	6
C	45 to 49.99	5
D	40 to 44.99	4
F	Less than 40	0

#### **4.3 Carry Forward of The Marks in Case The Learner Gets 'F' Grade in One Or More Subjects:**

- A learner who PASSES in the Continuous Internal Evaluation Examination but FAILS in the Semester End Examination of the course shall reappear for the Semester End Examination. Marks for Continuous Internal Evaluation shall be carried over and he/she shall be entitled for grade obtained by him/her on passing.
- A learner who PASSES in the Semester End Examination but FAILS in the Continuous Internal Evaluation of the course shall reappear for the Continuous Internal Evaluation Examination of that course. However, his/her marks of the Semester End Examination shall be carried over and he/she shall be entitled for grade obtained by him/her on passing.
- For Courses without practical: In case of a learner who is reappearing for the Continuous Internal Evaluation Examination, the examination will consist of two projects of 20 marks each.

#### **4.4 Allowed to Keep Terms (ATKT) Facility:**

As per University rules and regulations

#### **Additional Examinations:**

- A. Continuous Internal Evaluation: As per University rules and regulations Class test or assignment for Continuous Internal Evaluation as per University rules and regulations
- B. Semester End Examinations: As per University rules and regulations

#### **Eligibility to Appear for Additional Semester End Examination:**

As per University rules and regulations

**Mode of Conduct of Semester End Additional Examination:**

As per University rules and regulations

**4.5 Evaluation of Projects (Wherever Applicable)**

- A learner who PASSES IN ALL THE COURSES BUT DOES NOT secure minimum grade of D in projects as applicable, has to resubmit a fresh project (if required even repeatedly) till he/she secures a minimum of grade D. His/her marks in the theory papers that the learner has passed will be carried forward and he/she shall be entitled for grade obtained by them on passing.
- The evaluation of project and viva-voce examination shall be by award of grade in the ten point scale.
- A learner shall have to obtain minimum of grade D (or its equivalent marks) in project evaluation and viva voce taken together to obtain 40% marks in project work.

**4.6 Calculations of GPA & SGPA**

As per University rules and regulations

## 5 Teaching Methodology

### 5.1 Classroom Sessions:

- **Regular Lectures:** Lectures shall be delivered by experienced faculties along with visiting faculties and experts from the Industry.
- **Assignments & Projects:** Shall be assigned at regular intervals of the course. It offers an opportunity for students to meet, interact and collaborate with the experienced people from the industry.
- **Knowledge Workshops and Industry seminars:** Shall be organized at regular intervals to keep the students informed about the latest developments in the Industry. These workshops will be uniquely designed with a focus on practical industry – relevant topics.
- **Simulated Events:** Shall be conducted to get the real feel of organizing and managing an activity like risk analysis in Investments, in insurance business etc. The exercise gives the student's an opportunity to identify the finer nuances of industry thereby helping them to identify key success factors and areas of improvement.

### 5.2 Guest Lectures and Case Studies:

- **Guest Lectures:** Eminent people from the industry shall be invited as guest speakers to impart lessons and their rich experiences on various fields related to areas of actuary to the student. They also focus on imparting training around management concepts that have today become essential skills to carve a niche in the industry.
- **Case Studies:** Case studies highlighting various practical and situational issues shall be regularly discussed during classroom sessions. The discussion caters towards identifying what went wrong in the case and what could have been done

in a better manner, this helps train students to handle such situations in the future. The exercise also improves the analyzing and analytical of our students.

### 5.3 Innovative & Interactive Learning Technology

- **Educational wikis:** It keeps track of education – oriented wikis, establishes constructive interactions with them, and researches their technology, activity, culture, processes and impact.
- **Creative Presentation Ideas:** Prezi is a powerful communication and presentation tool that aims to replace Power point Presentation. Equipping students with the knowledge of this tool helps in preparing them to adapt easily to every changing dynamics of the corporate world.
- **CREATE through Technology:**

**Communication and Collaboration:** Google Apps provides students a chance to learn how to use webmail services, calendar (shared calendaring), G-Talk (instant messaging and voice/video chat) and Drive (online document creation & sharing).  
**Education through Blogs:** A powerful and interactive medium for learning. Ideal to educate, discuss and share innovative ideas across a large and diverse set of audiences.

- **Unparalleled Internships & Practical Training**

Students at Khandwala College get opportunities to participate in National & International Events round-the-year. They get Practical Training during internship.

**In-House Events:** Students are provided with an opportunity to work on conferences and seminars organized in-house right from the start to finish, to provide them with hands-on experience, which helps them to gain excellent event organization skills



## 6 Board of Studies

Sr. No.	Category	Name	Affiliation
1	Head of the Department (Chairman)	Dr. Varsha Ainapure	Nagindas Khandwala College, Mumbai
2	Entire faculty of each Specialisation	Prof. Rajendra Shah Mrs. Purnima Shah Dr. Mrinalini Kohojkar	Nagindas Khandwala College, Mumbai
3	Subject experts from outside the parent university (2) *	(i) Dr. Arshia Kaul Assistant Professor	Anil Surendra Modi school of commerce, NMIMS, Mumbai
		(ii) Dr. K. Sriram	FIA of UK, India(FIAI), Visiting Faculty at IIM (B)
4	Expert nominated by the Vice-chancellor (1) **	DR. Dr. Annapurna Shankarnarayanan	Associate Prof. & Vice Principal (Arts) St. Xavier's College, Autonomous, Mumbai
5	Representative from industry/corporate sector/allied area relating to placement (1)	Mayur Ankolekar	FIA of UK, Consulting Actuary, Ankolekar & Co
6	Postgraduate meritorious alumnus ***	NA	NA
7	Chairman, with the approval of the Principal, may co-opt (a) Experts from outside the college whenever special courses of studies are to be formulated. (b) Other members of staff of the same faculty.	NA	NA

**7. Curriculum Framework for *Bachelor of Commerce (B.Com.)*  
(Honours) Actuarial Studies**  
Under Choice Based Credit, Grading and Semester System

**Course Structure**

**FIRST YEAR**

**(For Academic Year- 2020-2021)**

No.	Semester I		Credits	No.	Semester II		Credits
<b>Ability Enhancement Compulsory Courses (AECC)</b>				<b>Ability Enhancement Compulsory Courses (AECC)</b>			
1	Foundation Course 2011UCHAFC	AECC-1	3	1	Environmental Studies 2021UCHAES	AECC-2	3
<b>Core Courses (CC)</b>				<b>Core Courses (CC)</b>			
2	Actuarial Statistics 1A [Theory and Practical] 2012UCHAAS	CC-1	4+2	2	Actuarial Statistics 2A [Theory and Practical] 2022UCHAAS	CC-3	4+2
3	Actuarial Statistics 1B [Theory and Practical] 2013UCHAAS	CC-2	4+2	3	Actuarial Statistics 2B [Theory and Practical] 2023UCHAAS	CC-4	4+2
<b>Discipline Specific Elective (DSE) Courses</b>				<b>Discipline Specific Elective (DSE) Courses</b>			
4	Any <u>one</u> from DSE Group A • Actuarial Accounting 1 • Mathematics for Actuaries 1 2014UCHAAC/MA	DSE-1	3	4	Any <u>one</u> from DSE Group A • Actuarial Accounting 2 • Mathematics for Actuaries 2 2024UCHAAC/MA	DSE-2	3
<b>Skill Enhancement Compulsory Courses (SEC)</b>				<b>Skill Enhancement Compulsory Courses (SEC)</b>			
5	R Programming [Practical] 2015UCHARP	SEC-1	4	5	Advanced Excel with Macros [Practical] 2025UCHAEX	SEC-2	4
	<b>TOTAL</b>		<b>22</b>		<b>TOTAL</b>		<b>22</b>

**SECOND YEAR**

**(For Academic Year- 2020-2021)**

<b>No.</b>	<b>Semester III</b>		<b>Credits</b>	<b>No.</b>	<b>Semester IV</b>		<b>Cred its</b>
<b>Core Courses (CC)</b>				<b>Core Courses (CC)</b>			
1	Actuarial Mathematics 1A [Theory] <b>1931UCHAM</b>	CC-5	4	1	Actuarial Mathematics 2A [Theory] <b>1941UCHAM</b>	CC-10	4
2	Actuarial Mathematics 1B [Theory] <b>1932UCHAM</b>	CC-6	4	2	Actuarial Mathematics 2B [Theory] <b>1942UCHAM</b>	CC-11	4
3	Actuarial Mathematics 1C [Theory] <b>1933UCHAM</b>	CC-7	4	3	Actuarial Mathematics 2C [Theory] <b>1943UCHAM</b>	CC-12	4
4	Actuarial Mathematics 1 [Practical] <b>1934UCHAM</b>	CC – 8 (5, 6,7) related	4	4	Actuarial Mathematics 2 [Practical] <b>1944UCHAM</b>	CC- 13 (10,11,12 related)	4
5	Insurance Principles and Designing of Insurance Products [Theory and Practical] <b>1935UCHAIP</b>	CC- 9	4+2	5	Data Analytics [Theory and Practical]  <b>1945UCHADA</b>	CC-14	4+2
	<b>TOTAL</b>		<b>22</b>		<b>TOTAL</b>		<b>22</b>

## 7.1 DISTRIBUTION OF CREDITS

Year 1	44
Year 2	44
Year 3	44
Total	132

## 7.2 Code Description

For Example, Foundation Course: **2011UCHAFC**

20	Start Year of Implementation
11	Semester & Sr. No.
U	Under Graduate
C	Commerce Stream
H	Honours
A	Actuarial Studies
FC	Course Name

For Example, Actuarial Mathematics: **1931UCHAM**

19	Start Year of Implementation
31	Semester & Sr. No.
U	Under Graduate
C	Commerce Stream
H	Honours
A	Actuarial Studies
M	Course Name

# **Bachelor of Commerce (Honours) Programme Actuarial**

## **Studies**

### **Three Year Integrated Programme -**

### **Six Semesters**

#### **Basic Structure: Distribution of Courses**

1	<b>Ability Enhancement Compulsory Course (AECC)</b>	4 Courses of 3 Credit Hrs. each (Total Credit Hrs. 4*3)	12
2	<b>Skill Enhancement Compulsory Course (SEC)</b>	2 Courses of 4 Credit Hrs. each (Total Credit Hrs. 2*4)	8
3	<b>Core Course -Practical -Theory</b>	8 Courses of 6 Credit Hrs. each (Total Credit Hrs.8*6) and 10 Courses of 4 Credit Hrs. each (Total Credit Hrs. 10*4)	88
4	<b>Discipline Specific Elective (DSE)</b>	6 Courses of 3 Credit Hrs. each (Total Credit Hrs. 6*3)	18
5	<b>Genetic Elective (GE)</b>	2 Courses of 3 Credit Hrs. each (Total Credit Hrs. 2*3)	6
	<b>Total Credits Hrs</b>		132