Program Specification

(Postgraduate Programs)

Program Name: **Executive Master of Science in Actuaries and Financial Mathematics**	
Program Code (per the Saudi Standard Classification of Educational Levels and Specializations): **054203**	
Qualification Level: **7**	
Department: **Mathematics and Statistics**	
College: **Science**	
Institution: **Imam Mohammad Ibn Saud Islamic University**	
Program Specification: **New** ☒	**updated*** ☐
Last Review Date: **2025/02/06**	

*Attach the previous version of the Program Specification.

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A. Program Identification and General Information:

1. Program's Main Location:

Main Campus for the Male Section and King Abdullah City for the Female Section.

2. Branches Offering the Program (if any):

None

3. System of Study:

☐ Coursework & Thesis	✓ **Coursework**

4. Mode of Study:

✓ **On Campus**	☐ Distance Education	☐ Other ……(specify)

5. Partnerships with other parties (if any) and the nature of each: None

- **Partnership Arrangement:**
- **Type of Partnership:**
- **Duration of Partnership:**

6. Professions/jobs for which students are qualified:

- **212002 Actuary.**
- **212003 Statistician.**
- **241104 Treasurer.**
- **241304 Financial Investigator.**
- **241306 Insurance Specialist.**
- **331302 Stock Controller.**
- **331404 Statistician Assistant.**
- **412001 Administrative Assistant.**
- **421001 Cashier.**

7. Relevant occupational/ Professional sectors:

- **Insurance Industry:** Actuarial roles in life, health, and property insurance.
- **Finance and Banking:** Positions in investment banking, risk management, and financial analysis.
- **Pension and Retirement Planning:** Actuarial roles focused on pension funds and retirement schemes.
- **Consulting Firms:** Actuarial consulting and risk management services.
- **Data Science and Analytics:** Roles in statistical modeling and predictive analytics.
- **Investment Firms:** Portfolio management and market analysis.

8. Major Tracks/Pathways (if any): N.A.

Major track/pathway	Credit hours (For each track)	Professions/jobs (For each track)

9. Exit Points/Awarded Degree (if any): N.A.

Exit points/Awarded degree	Credit hours

10. Total credit hours: (33)

B. Mission, Goals, and Program Learning Outcomes

1. Program Mission:

Enhance the use of mathematical and statistical methods in formulating the best business and actuarial strategies, to help companies, build appropriate financial and insurance plans, and predict risks in these domains.

2. Program Goals:

1. Promote applied methods used in finance and actuarial industry in the kingdom.
2. Produce world-class graduates with a broad-based and global outlook able to work both within the kingdom and beyond in finance and actuaries job market.
3. Provide students with the practical methods and skills needed to begin or enhance careers as quantitative analysts in the financial and actuarial industry.
4. Train graduates with an adequate understanding of the financial and actuarial markets.
5. Raise the efficiency of those enrolled in financial and actuarial positions in both public and private sectors within the business and insurance sectors.

3. Program Learning Outcomes:

Knowledge and Understanding:	
K1	Demonstrate an understanding of the fundamental probability tools for quantitatively assessing risk and various insurance problems.
K2	Explain quantitative concepts and basics of financial analysis from accounting to capital budgeting applicable to insurance companies.
Skills:	
S1	Apply the theoretical basis of certain actuarial models, life contingent, and other financial risks models.
S2	Distinguish the steps involved in the modeling process in solving business problems.
S3	Analyze data from an application in a business context.
Values, Autonomy, and Responsibility:	
V1	Develop rapport in groups, adaptable to new circumstances, both independently and in collaboration with others.
V2	Generate the highest standards of ethical conduct and professional behavior, critical, interpersonal and communication skills as well as a commitment to life-long learning

* * Add a table for each track (if any)

C. Curriculum:

1. Curriculum Structure:

Program Structure	Required/ Elective	No. of courses	Credit Hours	Percentage
Course	Required	10	30	90.9%
	Elective	1	3	9.1%
Graduation Project (if any)		0	0	0%
Thesis (if any)		0	0	0%
Field Experience(if any)		0	0	0%
Others (.....)		0	0	0%
Total		11	33	100%

* Add a separate table for each track (if any).

2. Program Courses:

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours (Lec., Lab., Tut.)	Type of requirements (Institution, College, or Program)
Level 1	STA 6101	Actuarial Statistics	Required	None	3(2,0,2)	Program
	AFM 6101	Actuarial Methods	Required	None	3(2,0,2)	Program
	AFM 6102	Actuarial Models	Required	None	3(2,0,2)	Program
Level 2	AFM 6111	Data Science in Finance and Insurance	Required	None	3(2,2,0)	Program
	STA 6103	Probability Models with Actuarial Applications	Required	None	3(2,2,0)	Program
	AFM 6203	Survival Models	Required	None	3(2,0,2)	Program
Level 3	AFM 6212	Financial Derivatives	Required	None	3(2,0,2)	Program
	AFM 6213	Predictive Modeling in Finance and Insurance (1)	Required	None	3(2,2,0)	Program
	AFM 6204	Risk and Regulation	Required	None	3(2,0,2)	Program
Level 4		AFM Elective Course	Required	None	3(2,0,2)	Program
	AFM 6297	Actuarial and Financial Cases	Required	None	3(2,0,2)	Program

* Include additional levels (for three semesters option or if needed).
** Add a table for the courses of each track (if any)

AFM Elective Courses:

1. **AFM 6214: Valuation and Hedging;**
2. **AFM 6215: Predictive Modeling in Finance and Insurance (2);**
3. **AFM 6216: Property and Casualty;**
4. **AFM 6217: Multi-Asset Portfolio Management;**
5. **AFM 6218: Insurance Law and Accounting.**

3. Course Specifications:

Insert hyperlink for all course specifications using NCAAA template (T-104)

Attached with this file.

4. Program learning Outcomes Mapping Matrix:

Align the program learning outcomes with the program's courses according to the desired performance levels.
(I = Introduced, P = Practiced, M = Mastered).

S	Course code & No.	Program Learning Outcomes						
		Knowledge and understanding		Skills			Values, Autonomy, and Responsibility	
		K1	K2	S1	S2	S3	V1	V2
1	STA 6101	P	P	P	P	P	P	P
2	AFM 6101	P	P	P	P	P	P	P
3	AFM 6102	P	P	P	P	P	P	P
4	AFM 6111	P	P	P	P	P	P	P
5	STA 6103	I	I	I	I	I	I	I
6	AFM 6203	P	P	P	P	P	P	P
7	AFM 6212	M	M	M	M	M	M	M
8	AFM 6213	M	P	P	P	M	M	P
9	AFM 6204	M	M	M	M	M	M	M
10	AFM 6214	M	M	M	M	M	M	M
11	AFM 6215	M	P	P	P	M	M	P
12	AFM 6216	M	P	P	P	M	M	P
13	AFM 6217	M	M	M	M	M	M	M
14	AFM 6218	M	P	P	P	M	M	P
15	AFM 6297	M	M	M	M	M	M	M

* Add a separate table for each track (if any).

5. Teaching and learning strategies applied to achieve program learning outcomes:

Describe teaching and learning strategies to achieve the program's learning outcomes in all areas.

According to College Strategic Plan, graduates will be active learners and bilingual students, with a scientific, technological, mathematical, statistical, actuarial, financial, background and ethical values. However, in order to achieve the Strategic Plan Goals, the College developed thirteen initiatives:

The department ensures teaching quality standards through the following actions:

- At the beginning of each semester, the syllabi are given to the students, containing courses detailed information, method of evaluation and grades, etc.
- The courses distribution is done according to the specialities of faculty staff and their wishes.
- At the beginning of each semester two coordinators are nominated for each course, one in Female Branch and the other one in Male Branch, who are asked to communicate and coordinate between them.
- The duties of the course coordinator consist on:
  - Distribution of time according to the course contents.
  - The preparation of the exercises list, the midterm and the final exam.
  - The mmarks distribution through different evaluations (midterm and final exams, quizzes, home works, attendance, participation, etc…).
  - The dates and times of midterm exams (final exams are fixed by University or College).
- The follow-up of good progress of the course in all the sections through the periodic meetings with course teachers and report.
- The evaluation of the teaching quality and benchmarking between parallel sections (groups) and the sections of the previous session of the same course.
- Collect the course report.
- Update the course folder.
- Annual report is prepared annually.
- Student surveys of all courses and program.
- Teaching staff evaluations of the program.
- Annual Faculty and Staff performance evaluation.

Supports for student independent work:

There are many supports for the independent scientific work of the students and here are some of them:

1) *Open Computer Labs*: The students can use these facilities to review independently a part of a course, to prepare a home work or an exam, or to access the (local) digital library;
2) *Digital library via open computer labs*: The students, in particular those preparing a Master degree, can access the (local) digital library to get free papers and theses. They read independently these resources and write reports on them;
3) *Materials provided via Blackboard platform*: The teachers use Blackboard to give students all kinds of materials related to the courses: syllabi, slides, list of exercises, solutions to exams and home works, etc… These materials can be used independently by students for a best management of the course;

4) At least six office hours provided by each teacher: Each teacher has to choose in his timetable at least six office hours in order to discuss all course issues with students;
5) Capstone Project or Course (Research, graduation project, or a practice course): During this course, students have to work independently in order to write a report and to give an oral presentation at the end of the course;
6) Mini-projects and/or home works in some courses: The main goal of these assessment methods is to strength the independence work of students.

6. Assessment Methods for program learning outcomes:

Describe assessment methods (Direct and Indirect) that can be used to measure the achievement of program learning outcomes in all areas.

The program should devise a plan for assessing Program Learning Outcomes (all learning outcomes should be assessed at least once in the program's cycle).

Direct Assessment Methods:

- **D1. National, regional, or international exam results (developed outside the institution for use by a wide group of students using international, national, or regional norms).**
- **D2. Capstone Project or Course (AFM 6297 - Actuarial and Financial Cases).**
- **D3. Satisfaction of students in entrance/exit surveys.**
- **D4. Performance (participation in campus and/or community events, volunteer work, presentations, internships, art performances, etc).**
- **D5. Percentage of success in in major courses (AFM courses).**

Indirect Assessment Methods:

- **I1. Satisfaction of stakeholder surveys.**
- **I2. Satisfaction of Program Advisory Committee.**
- **I3. Average of the student's GPA.**

D. Thesis and Its Requirements (if any): N.A.

1. Registration of the thesis:

(Requirements/conditions and procedures for registration of the thesis as well as controls, responsibilities and procedures of scientific guidance)

2. Scientific Supervision:

(The regulations of the selection of the academic supervisor and their responsibilities, as well as the procedures/ mechanisms of the scientific supervision and follow-up)

3. Thesis Defense/Examination:

(The regulations for selection of the defence/examination committee and the requirements to proceed for thesis defence, the procedures for defence and approval of the thesis, and criteria for evaluation of the thesis)

H. Student Admission and Support:

1. Student Admission Requirements:

In addition to the conditions mentioned in the Chapter 5, article (13) p. 10 of the Unified Policies of Graduate Studies in Saudi Universities (UGSP) and Regulations Governing Postgraduate Studies in Universities - Issued by University Affairs Council Resolution No. 2/9/1444 (https://units.imamu.edu.sa/deanships/GRADUATE/circulations/Documents/Law1.pdf), applicants to this Executive Master Program should fulfil the followings:

- **The applicant should have a B.Sc. degree in actuarial (&) financial mathematics/mathematics/applied mathematics/statistics/applied statistics/operations research/finance/insurance from an official local university or a recognized international university with a GPA equals or equivalent to 3.5 out of 5.**
- **The applicant should have at least 2 years job experience.**
- **The applicant should pass the interview set by the Mathematics Graduate Committee (MGC).**
- **The applicant should get a TOEFL score at least 400 or equivalent scores in other recognized international English tests.**
- **An applicant who was admitted for this program with his (her) B.Sc. in other field than Actuarial and Financial Mathematics from a college other than the College of Science may be required to finish successfully some complementary undergraduate courses before registering any course of the executive master program.**
- **The complementary undergraduate courses mentioned herein above are determined for each student by the Mathematics Graduate Committee and should be taken within three academic semesters from his (her) enrolment in the program and being dealt on that according to article (18) of (UGSP).**
- **Students who are enrolled in another recognized master program having at least a GPA equal or equivalent to 3.5 out of 5 may be transferred to the program upon establishing all related conditions mentioned above and upon fulfilling the requirements mentioned in article (30) of (UGSP).**
- **Applicants who got a B.Sc. in a scientific major other than Actuarial and Financial Mathematics will be dealt case by case and an appropriate decision for them will be made.**
- **Students who are enrolled in another graduate program in Imam University or in another recognized master program other than Actuarial and Financial Mathematics will be dealt case by case and an appropriate decision for them will be made according to article (31) of (UGSP).**

2. Guidance and Orientation Programs for New Students:

(Include only the exceptional needs offered to the students of the program that differ from those provided at the institutional level).

None

3. Student Counseling Services:

(Academic, professional, psychological and social)

(Include only the exceptional needs offered to the students of the program that differ from those provided at the institutional level)

- **The lecturer for each course allocates 6 office hours per week advertised on his / her own timetable, and reserved as part of his / her teaching schedule to help the students on any academic problems, difficulties, or issues.**

- **The student is able to get individual consultation and academic advice appointment with teaching staff via e-mail or phone calls.**
- **A list of teaching staff members with their room numbers, their phone numbers and their e-mail addresses are given in the Department website.**
- **Each admitted student in the program has an academic advisor who can help him (her) to select courses and locate resources.**
- **Master Academic Advisors are assigned to admit students by MGC upon starting the program to guide and help him (her) throughout his (her) academic program.**
- **The Master Academic Advisor is trained to know all degree requirements from beginning to end, and can assist him (her) in planning courses in an appropriate sequence.**
- **In the second year, the student should take the course (AFM 6297 – Actuarial and Financial Cases) and chooses a research supervisor who will assist and guide him (her) in the compulsory research project.**
- **On the other hand, a departmental advisor can provide information, advice and support in relation to accommodation, emotional difficulties, assessment of needs and provision of support related to disability, student funding, general welfare, student discipline and complains and part-time work.**

4. Special Support:

(Low achievers, disabled, and talented students).

Student with special needs or disabilities may be allowed to take only four courses (instead of six courses) in an academic year upon the consent of (MGC) and the supervisor.

E. Faculty and Administrative Staff:

1. Needed Teaching and Administrative Staff:

Academic Rank	Specialty		Special Requirements / Skills (if any)	Required Numbers		
	General	Specific		M	F	T
Professor	Mathematics	Pure/Applied	None	6	4	10
Associate Professor	Mathematics	Pure/Applied	None	6	4	10
Assistant Professor	Mathematics	Pure/Applied	None	5	5	10
Technicians and Laboratory Assistants	None			0	0	0
Administrative and Supportive Staff	None			0	0	0
Others (specify)	None			0	0	0

F. Learning Resources, Facilities, and Equipment:

1. Learning Resources:

Learning resources required by the program (textbooks, references, e-learning resources, web-based resources, etc.)

For the planning and acquisition of learning resources, the MGC proceeds as follows:

STEP 1: For each course the MGC assigned a faculty members committee to do the followings:

- **Course description (preliminary syllabus),**
- **Recommend Lists of Required Textbooks, Essential References Materials (Journals, Reports, *etc.*), Recommended Textbooks and Reference Material (Journals, Reports, *etc.*), Electronic Materials (eg. Web Sites, social media, Blackboard, etc.), and other learning material such as computer-based programs / CD, professional standards or regulations and software.**

STEP 2: MGC collects learning resources of all courses and submits the required lists to the Head of the department to get the approbation of the department council.

STEP 3: After the department council approval, the Department Head asks the College Dean to provide the Required lists of Learning Resources through the University Central Library and / or the IT Deanship.

2. Facilities and Equipment:

(Library, laboratories, classrooms, etc.)

For the planning and acquisition resources for library, laboratories, and classrooms the MGC proceeds as follows:

STEP 1: Evaluation of the locals assigned for graduated programs: Library (equipped with textbooks and references provided by the Central Library), Laboratories (equipped with appropriate computers and software), and classrooms.

STEP 2: In the shortage case of supplies, the MGC will report that to the Department Head in order to ask the College Dean to provide such supplies through the University Central Library and / or the IT Deanship.

3. Procedures to ensure a healthy and safe learning environment:

(According to the nature of the program)

N.A.

G. Program Quality Assurance:

1. Program Quality Assurance System:

Provide a link to the quality assurance manual.

https://imamuedusa-my.sharepoint.com/:b:/g/personal/alakhalil_cloud_imamu_edu_sa/EZA2RBjov-dFj1uzGyvHQN8BxmRp20mCEwZ1oWr8wJsbvQ?e=MhYenb

Program review and its development is periodically assessed through the following processes:

- **Courses reports are submitted to the program manager every semester.**
- **Appropriate teaching staff committee is in the charge of assessment and modification.**
- **Prepare and monitor the annual program report.**
- **Conduct and analyze surveys opinion of the students about the courses and the program.**
- **Conduct and analyze surveys opinion of the employers about the program.**
- **Program manager reviews the proposals submitted by the previous committees and makes appropriate decision after approbation of the department council.**
- **Monitor a global review for the development of the program periodically each five years if necessary.**

All the previous processes follow the Teaching\Learning Quality Assurance Process Diagram:

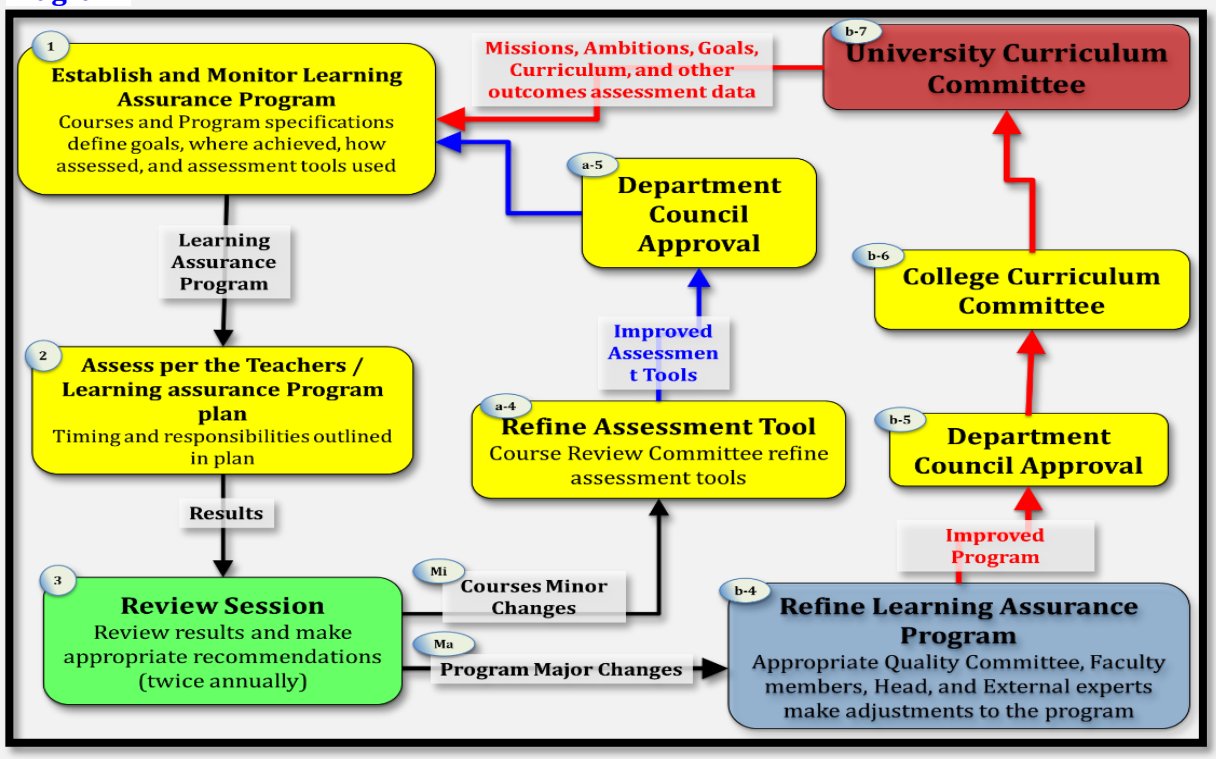


Figure 2 - Teaching\Learning Quality Assurance Process Diagram

2. Program Quality Monitoring Procedures:

- At the end of each semester, the course instructor should complete a course report, including a summary of student questionnaire responses appraising progress and identifying changes (course contents and / or textbooks and / or references) that need to be made if necessary. In the case where changes are recommended, the MGC report that to the Department Head in order to take actions.
- Students are asked at the end of this course to fill in an anonymous questionnaire on their assessment of the course. The forms will be analyzed, and the summary of results will be reported to the Department Head for evaluation and then to take actions.

3. Procedures to Monitor Quality of Courses Taught by other Departments:

N.A.

4. Procedures adopted to ensure consistency between the program's sections (male and female sections, if any).

- The students of both campuses may be taught at the same time, in the same section, and by the same teacher, according to their number.
- Furthermore, they have the same exams, homeworks, and required reports.

5. Assessment Plan for Program Learning Outcomes (PLOs):

- First, it "Mastered" level of performance with be a node of assessment of opportunity. The Mechanism, for demonstrating achievement of the learning outcomes, is an ongoing process which consists seven phases:
- Phase 1. Data-collection Methodology: Direct and Indirect (listed in Section C.6. above).
- Phase 2. Benefits and Drawbacks of Data-collection Methods.
- Phase 3. Evaluate the Choice of Data-collection Method.
- Phase 4. Collect data.
- Phase 5. Interpret evidence.
- Phase 6. Report the resulting information and document the analysis.
- Phase 7. Identify Areas for Improvement and Enhancement.
- At each stage (cycle of assessment), we use the resulting information in form of report into account to document, analyze, and improve the all components of the program based on the appropriate key performance indicators (KPIs). As follows a table summing the long run plan for assessing each track and All PLOs.

PLOs	Stage 1 (one year)	Stage 2 (one year)	Stage 3 (one year)	Stage 4 (one year)
K1	✓	✓	✓	
K2		✓	✓	✓
S1		✓	✓	✓
S2			✓	✓
S3		✓	✓	✓
V1		✓	✓	✓
V2		✓	✓	✓

6. Program Evaluation Matrix:

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
leadership	dean	evaluation report	end of academic year
effectiveness of teaching & assessment	program leader, faculty, independent reviewers, students	surveys, interviews, visits	end of the semester, during the semester
learning resources	employers, faculty, graduates, students	surveys, interviews	end of the semester, during the semester

Evaluation Areas/Aspects (e.g., leadership, effectiveness of teaching & assessment, learning resources, services, partnerships, etc.)
Evaluation Sources (students, graduates, alumni, faculty, program leaders, administrative staff, employers, independent reviewers, and others.
Evaluation Methods (e.g., Surveys, interviews, visits, etc.)
Evaluation Time (e.g., beginning of semesters, end of the academic year, etc.)

7. Program KPIs:*

The period to achieve the target (3) year(s).

No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
1	KPI-PG-1	Students' Evaluation of quality of learning experience in the program	4.60	surveys	Twice per year
2	KPI-PG-2	Students' evaluation of the quality of the courses	4.50	surveys	Twice per year
3	KPI-PG-3	Students' evaluation of the quality of the academic supervision	4.60	surveys	Yearly starting from the first promotion
4	KPI-PG-4	Average time for students' graduation	7 years	Graduation data	Yearly starting from the first promotion
5	KPI-PG-5	Rate of students dropping out of the program	0.3	Graduation data	Yearly starting from the first promotion
6	KPI-PG-6	Employers' evaluation of the program graduates' competency	4.80	surveys	Yearly starting from the first promotion
7	KPI-PG-7	Students' satisfaction with services provided	4.60	surveys	Yearly
8	KPI-PG-8	Ratio of students to faculty members	14.1	Department data	Yearly
9	KPI-PG-9	Percentage of publications of faculty members	80%	Department data	Yearly
10	KPI-PG-10	Rate of published research per faculty member	2.00-4.00	Department data	Yearly
11	KPI-PG-11	Citations rate in refereed journals per faculty member	60	Department data	Yearly
12	KPI-PG-12	Percentage of students' publication	30%	Department data	Yearly starting from the first promotion
13	KPI-PG-13	Number of patents, innovative products, and awards of excellence	1.00	Department data	Yearly

*including KPIs required by NCAAA

H. Specification Approval Data:

Council / Committee	**MATHEMATICS AND STATISTICS DEPARTMENT COUNCIL**
Reference No.	**28/1447**
Date	**17/10/1447 (05/04/2026)**