



## Program Specification

**Program Name:** Bachelor of Science in Applied Statistics

**Qualification Level:** 6

**Department:** Mathematics and Statistics

**College:** Science

**Institution:** Imam Mohammad Ibn Saud Islamic University

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## A. Program Identification and General Information

<b>1. Program Main Location:</b>		
<b>Main Campus for the Male Section.</b>		
<b>2. Branches Offering the Program:</b>		
<b>Branch 1. King Abdullah City for the Female Section.</b>		
<b>3. Reasons for Establishing the Program:</b> (Economic, social, cultural, and technological reasons, and national needs and development, etc.)		
<p><b>1. The implementation of the strategic objectives of the department and the college,</b> as the idea of creating a program in statistics dates back to 2004. The name of the department from “Mathematics Department” to “Mathematics and Statistics Department” subject of the honorable Telegraphic Directive from the High Rank No. 54727 dated 18/11/1432 AH by approval.</p> <p><b>2. Responding to the needs and requirements of the labor market and job opportunities,</b> as most of them - in the foreseeable future - revolve around Artificial Intelligence and digital infrastructure that are characterized by the flow of massive amounts of data and the multiplicity of its bases from digital applications and mobile devices. From here comes the importance of applied statistics as a pioneering specialty that includes planning for data collection, processing and analysis, interpreting them, drawing conclusions from the data, and identifying problems, solutions and opportunities using specialized software within the decision-making process in private companies and government institutions.</p> <p><b>3. Matching of the applied statistics specialty with the objectives of the Kingdom's 2030 vision.</b></p>		
<b>4. Total Credit Hours for Completing the Program: (140 Credit Hours)</b>		
<b>5. Professional Occupations/Jobs:</b>		
<ul style="list-style-type: none"> <li>• <b>Education Employers: Public schools, Private schools, College and Universities.</b></li> <li>• <b>Government Areas: Involving research and problem-solving teams, Administration Employers.</b></li> <li>• <b>Industry Areas: Working in Public and Private Companies that require statistical skills.</b></li> <li>• <b>Market and Banking areas: Stock Market Analysis, Information Analysis, Quality Control.</b></li> <li>• <b>Other: government ministries and institutions, and private sectors that require statistical skills.</b></li> </ul>		
<b>6. Major Tracks/Pathways (if any): N.A.</b>		
<b>Major track/pathway</b>	<b>Credit hours</b> (For each track)	<b>Professional Occupations/Jobs</b> (For each track)
<b>7. Intermediate Exit Points/Awarded Degree (if any):</b>		

Intermediate exit points/awarded degree	Credit hours
<p><b>The awarded degree is a Diploma in Statistics.</b></p>	<p>87 After the completion of at least 87 credit hours where at least 31 hours should be from statistical courses (course code STA).</p>
<p style="text-align: center;"><b>Professional Occupations/Jobs</b></p> <ul style="list-style-type: none"> <li>• <b>Statistical Monitor.</b></li> <li>• <b>Actuarial Assistant.</b></li> <li>• <b>Statistical Assistant.</b></li> <li>• <b>Statistical Surveyor.</b></li> <li>• <b>Statistical Technician.</b></li> </ul> <p><b>In the following sectors</b></p> <ul style="list-style-type: none"> <li>• <b>Government Areas: Administration Employers.</b></li> <li>• <b>Industry Areas: Working in Public and Private Companies in Analysis and Simulation areas.</b></li> <li>• <b>Market and Banking areas: Operations research, Branch Management, Information Analysis.</b></li> <li>• <b>Other: government ministries and institutions, and private sectors that require statistical skills.</b></li> </ul>	
<p style="text-align: center;"><b>Exit Point Program Learning Outcomes</b></p>	
<p><b>Knowledge and understanding</b> Students graduating with a Bachelor of Science in Applied Statistics degree will demonstrate competence have:</p>	
<p><b>D_K-1</b></p>	<p>Understand principles, and concepts involved in applied statistics needed to enter the job force.</p>
<p><b>D_K-2</b></p>	<p>A good working knowledge and understanding of processes, tools, methods, and practices based on some developments in applied statistics.</p>
<p><b>Skills</b> Students graduating with a Bachelor of Science in Applied Statistics degree will demonstrate competence to:</p>	
<p><b>P_S-1</b></p>	<p>Apply the concepts, principles and theories involved in addressing issues and problems in a range of real life contexts.</p>
<p><b>P_S-2</b></p>	<p>Critically evaluate knowledge and use it to provide solutions to some issues and problems in applied statistics.</p>
<p><b>P_S-3</b></p>	<p>Practice statistical methods and analysis in investigating issues and case study research.</p>
<p><b>P_S-4</b></p>	<p>Choose and use a digital technology, information, communication technology tools, and appropriate statistical software to process, analyze and produce data and information.</p>
<p><b>Values</b> Students graduating with a Bachelor of Science in Applied Statistics degree will demonstrate competence to:</p>	
<p><b>P_V-1</b></p>	<p>Demonstrate integrity, professional and academic ethics, participation in finding constructive solutions to some societal issues, and a commitment to responsible citizenship.</p>

P_V-2	Self-evaluate of the level of learning and performance, insist on achievement and excellence, and make logical decisions supported by evidence and arguments independently.
P_V-3	Lead teamwork with functional flexibility and effectiveness, and take responsibility for professional development.

## B. Mission, Goals, and Learning Outcomes

<b>1. Program Mission:</b>	
The mission of the undergraduate program in Applied Statistics is to prepare students for participating in the economic and social development of the Kingdom of Saudi Arabia, and leading innovation in higher education in the field of Statistics and its applications.	
<b>2. Program Goals:</b>	
<p><b>PG1.</b> Exhibit positive attitudes and national and institutional values toward the applied statistics, in order to contribute to an increasingly dynamic society.</p> <p><b>PG2.</b> Think critically, master problem-solving skills and communicate clearly applied statistics concepts and their impact to solve real-life problems.</p> <p><b>PG3.</b> Maintain an essence of statistical knowledge in line with technological changes to provide a solid foundation for lifelong learning in the future.</p> <p><b>PG4.</b> Have an appropriate package of professional skills to ensure a productive career that uses statistics.</p> <p><b>PG5.</b> Develop the creative potential of the students through research.</p>	
<b>3. Relationship between Program Mission and Goals and the Mission and Goals of the Institution/College.</b>	
<p>The bachelor's degree in applied statistics is a locomotive that leads to Imam University of openness on the natural and applied sciences. Furthermore, the university requirements courses included in the program curriculum are designed to reflect the intention of the program to reinforce Imam University mission, goals and values in terms of the Kingdom Identity.</p> <p><b>University Goals:</b></p> <p><b>UG1.</b> Creating a firmly coherent community in the university, revolving around a culture of distinction.</p> <p><b>UG2.</b> Providing a modern and energetic academical structure aiming to enable the academical programs to meet the needs of the community and labor marketplace, as well as applying the most effective educating and learning methods and techniques.</p> <p><b>UG3.</b> Developing and creating a well-handled research culture and research institutional environment for faculty staff members and students of the university, and enhancing the quality of research facilities and infrastructure, as well as generating an active cooperation between the</p>	

academic programs and academical research in all fields and building bridges of collaboration locally and internationally.

- UG4.** Establishing a distinguished brand for Al-Imam University, inspired by its strengths and contributions to the Saudi community and the world.
- UG5.** Expanding the organizational hierarchy to accommodate the university's capacity, its academic disciplines, and employment.
- UG6.** Pioneering in the field of active application of Information Technology for the academic research, education, and administrative organization purposes.
- UG7.** Maintaining an effective, remunerative and moral, incentives program and a supportive platform for faculty staff members to achieve distinction in teaching and academic research.
- UG8.** Assisting students in the academic achievements, and sharpening their whole set of social skills, and preparing them for the transition to practical life after graduation.
- UG9.** Providing the same level of quality of educating and services in the female students' campus by allocating sufficient resources to it and developing a more efficient administrative structure.
- UG10.** Proactively improves the university's resilience to easily innovate and adapt to changing circumstances and students' needs, while ensuring accountability.

**College Goals:**

- CG1.** Develop academic programs that meet the requirements of the local labor market and take into account the specializations required by governmental institutions and the private sector to provide graduates with greater opportunities to obtain suitable jobs.
- CG2.** Prepare qualified graduates to pursue graduate studies and are able to compete.
- CG3.** Promote scientific research and its localization.
- CG4.** Cooperate with scientific institutions and research centers in the fields of research and scientific inside and outside the Kingdom.
- CG5.** Serve university programs through supervising the courses of mathematics, Physics, chemistry, biology and statistics presented to other departments at the university.
- CG6.** Provide consultancy services and hold the trainings in the fields of specialization of the college.

In the following table we connect the Science College goals to the University ones.

	UG1	UG2	UG3	UG4	UG5	UG6	UG7	UG8	UG9	UG10
CG1	✓	✓		✓				✓	✓	✓

CG2			✓	✓	✓	✓		✓	✓	
CG3			✓	✓			✓		✓	
CG4			✓	✓			✓		✓	
CG5		✓							✓	✓
CG6				✓			✓		✓	

**Table 1 – Science College Goals versus University Goals**

And in the following table we connect the Program goals to the University ones.

	UG1	UG2	UG3	UG4	UG5	UG6	UG7	UG8	UG9	UG10
PG1	✓	✓		✓				✓		
PG2		✓						✓		
PG3		✓			✓	✓	✓	✓		✓
PG4						✓		✓	✓	
PG5			✓				✓	✓		

**Table 2 –Program Goals versus University Goals**

#### 4. Graduate Attributes:

1. **Competent and well-equipped instructors to teach mathematics and statistics in college;**
2. **Prepared for statistics-oriented career in industry, business and public administration; and**
3. **Having the foundation for further research for a career as a research statistician in a whole range of application areas.**

#### 5. Program learning Outcomes\*

##### Knowledge and understanding

Students graduating with a Bachelor of Science in Applied Statistics degree will demonstrate competence have:

**P\_K-1**

A comprehensive and consistent structure of knowledge and understanding of the theories, principles, and concepts involved in applied statistics needed to enter the job force.

**P\_K-2**

A good working knowledge and specialized understanding of processes, tools, methods, and practices based on recent developments in applied statistics, including:

- a) statistical modeling and the omnipresent role of variability,
- b) efficient design of studies and construction of effective sampling plans,

	c) exploratory data analysis, d) formal inference process.
<b>Skills</b>	
Students graduating with a Bachelor of Science in Applied Statistics degree will demonstrate competence to:	
P_S-1	Apply the concepts, principles and theories involved in addressing issues and problems in a range of complex contexts.
P_S-2	Critically evaluate complex knowledge and use it to provide innovative solutions to contemporary issues and problems in applied statistics.
P_S-3	Practice statistical methods and analysis in investigating complex issues and case study research.
P_S-4	Communicate in different ways demonstrating an understanding of theoretical knowledge, transferring knowledge and specialized skills, and sharing complex ideas within a variety of audience.
P_S-5	Choose and use a variety of digital technology, information, communication technology tools, and appropriate statistical software to process, analyze and produce data and information; to support and promote specialized research and projects.
<b>Values</b>	
Students graduating with a Bachelor of Science in Applied Statistics degree will demonstrate competence to:	
P_V-1	Demonstrate integrity, professional and academic ethics, participation in finding constructive solutions to some societal issues, and a commitment to responsible citizenship.
P_V-2	Self-evaluate of the level of learning and performance, insist on achievement and excellence, and make logical decisions supported by evidence and arguments independently.
P_V-3	Lead teamwork with functional flexibility and effectiveness, and take responsibility for professional development, participating in developing the group's performance, and enhancing the quality of life.

\* Add a table for each track and exit Point (if any)

## C. Curriculum

### 1. Curriculum Structure

<i>Program Structure</i>	<i>Required/ Elective</i>	<i>No. of courses</i>	<i>Credit Hours</i>	<i>Percentage</i>
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<b>Institution Requirements</b>	Required	<b>0</b>	<b>0</b>	<b>0%</b>
	Elective	<b>10</b>	<b>20</b>	<b>12%</b>
<b>College Requirements</b>	Required	<b>5</b>	<b>21</b>	<b>12%</b>
	Elective	<b>0</b>	<b>0</b>	<b>0%</b>
<b>Program Requirements</b>	Required	<b>26</b>	<b>111</b>	<b>64%</b>
	Elective	<b>2</b>	<b>8</b>	<b>5%</b>
<b>Capstone Course/Project</b>	-	<b>1</b>	<b>4</b>	<b>2%</b>
<b>Field Experience/ Internship</b>		<b>1</b>	<b>4</b>	<b>2%</b>
<b>Others</b>	Elective	<b>2/3</b>	<b>6</b>	<b>3%</b>
<b>Total</b>		<b>47/48</b>	<b>174</b>	<b>100%</b>

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

## 2. Program Study Plan

<i>Level</i>	<i>Course Code</i>	<i>Course Title</i>	<i>Required or Elective</i>	<i>Pre-Requisite / Co-Requisite Courses</i>	<i>Credit Hours</i>	<i>Type of requirements (Institution, College or Department)</i>
Level 1	MAT 1101	Calculus (1)	Required		5	College
	PHY 1101	General Physics (1)	Required		5	College
	ENG 1140	English (1)	Required		3	College
		University Requirement (1)	Elective		2	Institution
Level 2	MAT 1102	Calculus (2)	Required	MAT 1101	5	Department
	CHE 1101	General Chemistry (1)	Required		5	College
	ENG 1195	English (2)	Required		3	College
		University Requirement (2)	Elective		2	Institution
Level 3	MAT 1151	Foundations of Mathematics	Required		5	Department
	STA 1101	Probability & Statistics (1)	Required	MAT 1102	4	Department
	PHY 1102	General Physics (2)	Required	PHY 1101, MAT 1101	4	Department
		University Requirement (3)	Elective		2	Institution
Level 4	MAT 1203	Calculus (3)	Required	MAT 1102	5	Department
	MAT 1223	Linear Algebra	Required	MAT 1151	5	Department
	MAT 1241	Math Software	Required	MAT 1102	3	Department

<i>Level</i>	<i>Course Code</i>	<i>Course Title</i>	<i>Required or Elective</i>	<i>Pre-Requisite / Co-Requisite Courses</i>	<i>Credit Hours</i>	<i>Type of requirements (Institution, College or Department)</i>
		University Requirement (4)	Elective		2	Institution
Level 5	STA 1202	Probability & Statistics (2)	Required	STA 1101, MAT 1203	5	Department
	MAT 1231	Introduction to Differential Equations	Required	MAT 1102, MAT 1223		Department
	CS 1249	Computer Programming for Science	Required	MAT 1241	4	Department
Level 6	STA 1203	Mathematical Statistics	Required	STA 1202	4	Department
	STA 1261	Nonparametric Statistics	Required	STA 1202	5	Department
	MAT 1253	Introduction to Operations Research	Required	MAT 1151	4	Department
	QUR 1001	Quran Kareem University Requirement (5)	Elective		2	Institution
Level 7	STA 1331	Statistical Inference	Required	STA 1203	5	Department
	STA 1321	Introduction to Regression	Required	STA 1203	4	Department
	ECO 1100	Principles of Economy	Required		3	Department
		Free course*	Elective			Institution
Level 8	STA 1332	Sampling Methods	Required	STA 1331	4	Department
	STA 1341	Statistical Software	Required	STA 1202, CS 1249	3	Department
	MAT 1371	Financial Mathematics (1)	Required	MAT 1102	4	Department
		University Requirement (6)	Required		2	Institution
		Free course*	Elective			Institution
Level 9	STA 1322	Time Series Analysis	Required	STA 1321	4	Department
	STA 1351	Introduction to Stochastic Processes	Required	STA 1202, MAT 1223	4	Department
	STA 1363	Categorical Data Analysis	Required	STA 1331	4	Department
		Free course*	Elective			Institution
Level 10	STA 1425	Analysis of variance	Required	STA 1321, MAT 1223	5	Department
		Elective Course (1)	Required	Depending on the elective course	4	Department
	STA 1456	Introduction to Bayesian Statistics	Required	STA 1331	4	Department

<i>Level</i>	<i>Course Code</i>	<i>Course Title</i>	<i>Required or Elective</i>	<i>Pre-Requisite / Co-Requisite Courses</i>	<i>Credit Hours</i>	<i>Type of requirements (Institution, College or Department)</i>
		University Requirement (7)	Elective		2	Institution
Level 11	STA 1428	Multivariate Analysis	Required	STA 1425	5	Department
	STA 1426	Experimental Design	Required	STA 1425	4	Department
		Elective Course (2)	Required	<i>Depending on the elective course</i>	4	Department
		University Requirement (8)	Elective		2	Institution
Level 12	STA 1497	Training	Required		4	Department
	STA 1499	Graduation project	Required		4	Department
		University Requirement (9)	Elective		2	Institution
		University Requirement (10)	Elective		2	Institution

\* Include additional levels if needed

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

### List of Elective Courses (1) and (2) in levels 10 and 11

<i>Course Code</i>	<i>Course Title</i>	<i>Required or Elective</i>	<i>Pre-Requisite / Co-Requisite Courses</i>	<i>Credit Hours</i>	<i>Type of requirements (Institution, College or Department)</i>
STA 1423	Introduction to Econometrics	Elective	STA 1322	4	Department
STA 1434	Survival Analysis	Elective	STA 1331	4	Department
STA 1438	Reliability Theory	Elective	STA 1331	4	Department
STA 1442	Statistical Analysis with R	Elective	STA 1341	4	Department
STA 1452	Introduction to Queueing Theory	Elective	STA 1351	4	Department
STA 1454	Probability theory	Elective	STA 1203	4	Department
STA 1467	Demography	Elective	STA 1331	4	Department
STA 1471	Quality Control	Elective	STA 1332	4	Department
STA 1473	Network Analysis	Elective	MAT 1253	4	Department
STA 1481	Selected Topics in Applied Statistics (1)	Elective		4	Department
STA 1483	Selected Topics in Applied Statistics (2)	Elective		4	Department
STA 1465	Discrete Simulation	Elective	STA 1202	4	Department
MAT 1472	Financial Mathematics (2)	Elective	MAT 1371	4	Department

Course Code	Course Title	Required or Elective	Pre-Requisite / Co-Requisite Courses	Credit Hours	Type of requirements (Institution, College or Department)
MAT 1474	Actuarial Mathematics	Elective	MAT 1371	4	Department
CS 1449	Oriented Object Programming for Science	Elective	CS 1249	4	Department

**List of University requirements from (1) to (10)**

### 3. Course Specifications

Insert hyperlink for all course specifications using NCAA template

- [Attached with this document.](#)
- [Visit the following link to download all files concerning the program.](#)

### 4. Program learning Outcomes Mapping Matrix

Align the program learning outcomes with program courses, according to the following desired levels of performance (**I** = **Introduced** **P** = **Practiced** **M** = **Mastered**)

Course code & No.	Program Learning Outcomes									
	Knowledge and understanding		Skills					Values		
	P_K-1	P_K-2	P_S-1	P_S-2	P_S-3	P_S-4	P_S-5	P_V-1	P_V-2	P_V-3
MAT 1101	I	I	I	I	I	I		I	I	I
PHY 1101			I	I		I		I	I	I
ENG 1140								I	I	
UR (1)								I	I	I
MAT 1102	I	I	I	I	I	I		I	I	I
CHM 1101			I	I		I		I	I	I
ENG 1195			I					I	I	
UR (2)								I	I	I
MAT 1151	I	I	I	I	I	I		I	I	I
STA 1101	I	I	I	I	I	I	I	I	I	I
PHY 1102				I	I			I	I	I
UR (3)								I	I	I
MAT 1203	I	I	I	I	I	I	I	I	I	I
MAT 1223	I	I	I	I	I	I	I	I	I	I
MAT 1241	I	I	I	I	I	I	I	I	I	I
UR (4)								I	I	I
STA 1202	I	I	I	I	I	I	I	I	I	I
MAT 1231	I	I	I	I	I	I	I	I	I	I
CS 1249			I	I		I		I	I	I
STA 1203	P	P	P	P	I	I	I	P	P	P
STA 1361	P	P	P	P	P	P	P	P	P	P

Course code & No.	Program Learning Outcomes									
	Knowledge and understanding		Skills					Values		
	P_K-1	P_K-2	P_S-1	P_S-2	P_S-3	P_S-4	P_S-5	P_V-1	P_V-2	P_V-3
MAT 1253	I	I	I	I	I	I	I	P	P	P
UR (5)			I			I		I	I	I
STA 1321	P	P	P	P	P	P	P	P	P	P
STA 1331	P	P	P	P	P	P	P	P	P	P
ECO 1100			I		I			I	I	I
STA 1332	P	P	P	P	P	P	P	P	P	P
STA 1341	P	P	P	P	P	P	P	P	P	P
MAT 1371	P	P	P	P	P	P	P	P	P	P
UR (6)			I			I		I	I	I
STA 1322	P	P	P	P	P	P	P	P	P	P
STA 1351	P	P	P	P	P	P	P	P	P	P
STA 1363	M	M	M	M	M	M	M	M	M	M
STA 1425	M	M	M	M	M	M	M	M	M	M
STA 1456	M	M	M	M	M	M	M	M	M	M
UR (7)			I			I		I	I	I
STA 1428	M	M	M	M	M	M	M	M	M	M
STA 1426	M	M	M	M	M	M	M	M	M	M
UR (8)			I			I		I	I	I
STA 1497	M	M	M	M	M	M	M	M	M	M
UR (9)			I			I		I	I	I
UR (10)			I			I		I	I	I
STA 1499	M	M	M	M	M	M	M	M	M	M
STA 1423	M	M	M	M	M	M	M	M	M	M
STA 1434	M	M	M	M	M	M	M	M	M	M
STA 1438	M	M	M	M	M	M	M	M	M	M
STA 1442	M	M	M	M	M	M	M	M	M	M
STA 1452	M	M	M	M	M	M	M	M	M	M
STA 1454	M	M	M	M	M	M	M	M	M	M
STA 1467	M	M	M	M	M	M	M	M	M	M
STA 1471	M	M	M	M	M	M	M	M	M	M
STA 1473	M	M	M	M	M	M	M	M	M	M
STA 1481	M	M	M	M	M	M	M	M	M	M
STA 1483	M	M	M	M	M	M	M	M	M	M
MAT 1465	M	M	M	M	M	M	M	M	M	M
MAT 1472	M	M	M	M	M	M	M	M	M	M
MAT 1474	M	M	M	M	M	M	M	M	M	M
CS 1449	M	M	M	M	M	M	M	M	M	M
UR <sup>1</sup>										

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

### 5. Teaching and learning strategies to achieve program learning outcomes

<sup>1</sup> Univ

Describe policies, teaching and learning strategies, learning experience, and learning activities, including curricular and extra-curricular activities, to achieve the program learning outcomes.

**According to College Strategic Plan, graduates will be active learners and bilingual students, with a scientific, technological, Mathematics and Statistics\Physics\Chemistry, 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 in Male Branch one, 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 exercise lists, the midterms and the final exam.**
- **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 classrooms:* The teachers use Blackboard classrooms 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) Research or graduation project course: All programs have a research or graduation project. 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 strengthen the independence work of students.

**6. Assessment Methods for program learning outcomes.**

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

**Direct Assessment Methods:**

- D1. National or regional exam results (developed outside the institution for use by a wide group of students using national or regional norms).
- D2. Capstone Project or Course.
- 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 all courses.

**Indirect Assessment Methods:**

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

**D. Student Admission and Support:**

**1. Student Admission Requirements**

The admissions take place only once on summer vacation, through the Unified E-Admission Portal at the public universities in Riyadh region. There are no admissions for the second semester. The application for admission is through the Unified E-admissions Portal for Students.

Students can apply for admission to IMSIU University through the Unified E-Admissions Portal for public universities in Riyadh region. In fact, it enables the applicant to fill the admission application electronically and to choose an academic major according to his/her certifications, grades and priorities determined by himself/herself without the need of his/her presence at the university.

According to his/her GPA, the student will be accepted directly into the scientific program that he/she wishes to enrol in after passing the preparatory program successfully.

The admission of students at university is part of the responsibility of the Deanship of Admission and Registration.

1. Applicant must be holding a General Secondary Certificate or Secondary Certificate or equivalent from KSA or outside.
2. The applicant must be of good conduct and behaviour.
3. Applicant must be medically fit.
4. The applicant must obtain approval from his reference to study if he works in any governmental or private entity.
5. To successfully pass any test or personal interview deemed by the University Council.
6. Admission is limited to high school graduates from natural sciences track.
7. The calculation of compound ratios is computed as following:

No	Exam Type	Acceptance criterion (compound/equivalent ratio)
1	High school diploma	30%
2	General Aptitude Test (GAT)	30%
3	Academic Achievement Test	40%

## 2. Guidance and Orientation Programs for New Students

The Applied Statistics Program provides comprehensive orientation for new students. It holds an orientation week (organized by the college) for new students in the beginning of every academic year. During the orientation week, students have the opportunity to:

- Meet other new students, current student leaders, faculty, and staff.
- Learn their way around campus.
- Find out about all the student services and academic programs at the University of Imam Mohammad Ibn Saud Islamic University.
- Address their individual needs and get their questions answered.

During the orientation week, students are given manuals and brochures which help them to understand and to familiarize themselves with the university environment, programs, services, facilities, rights, and duties. In addition to the orientation week, an orientation meeting is held for new students at the beginning of each semester. In this meeting, new students are provided with the necessary information they need during their years of study. This meeting is attended by all the new students as well as the College Dean, Vice Dean for Academic affair and the department academic advisor. During this meeting, the chair of the department, the department's coordinator of academic advising and the department's coordinator of academic affairs address the new students and give them all the necessary academic information they need. Moreover, they answer all the questions raised by the students during the meeting. In addition,



the University Deanship of Student Affairs provides new students with the necessary guidance and orientation programs.

**3. Student Counseling Services** (academic, career, psychological and social)

- Student admitted to the bachelor program will be assigned an academic advisor, responsible for pastoral support, guidance and counseling.
- The academic advisor assists students in developing educational plans that are consistent with their life goals.
- The academic advisor provides students with accurate information about academic progression and degree requirement.
- The academic advisor assists students in understanding academic policies and procedures.
- The academic advisor assists students in overcoming educational, social, and personal difficulties.
- 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.
- Student can 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.
- University support services include careers, financial advice, housing, counseling etc.
- Excellent library facilities.
- University, college and department handbooks provide information about the course structure and University regulations etc.
- Feedback is provided for all assessments.

**4. Special Support** (low achievers, disabled, gifted and talented)

The Applied Statistics Program (via the head of the department) and the University of Imam Mohammad Ibn Saud Islamic university provide care and support for the low achievers and the disabled students. Furthermore, the deanship for academic affairs has established a Center Special Needs Services (CSNS). As for the underachieving students, they are identified and provided with remedial programs to help them overcome the difficulties hindering their progress into the program. These students are distributed among the academic advisors at the department and are given due interest. They are met on regular basis by their academic advisors who are asked by the academic advising coordinator (after the coordination with the CSNS) to take an appointment. During these meetings, the students are provided with advice, and guidance to help the students make decisions, related to registration decisions, deletion, addition, grievance or even transfer to another program. Furthermore, the program has established the Student Academic Support Center (SASC) that offers several specialized courses for underachieving students, so that they can finish graduation requirements and catch up with their colleagues. These students are also offered several programs, lectures, and workshops on selected topics in which they can develop and strengthen their knowledge and language skills. This process of following up these underachieving students continues until their graduation.

Both program and institution pay due attention to students of special needs (e.g. disabled students). They are provided with special care. Their special needs are taken into consideration for the access of the building and specially during the exams.

For the gifted and talented students, the university has established a department for creativity and talent to identify and to develop the abilities of these students named Department of Gifted and Talented Care. This is achieved through holding several extracurricular activities to attract and to encourage the talented students to develop their abilities and gifts.

## E. Teaching and Administrative Staff

### 1. Needed Teaching and Administrative Staff

Academic Rank	Specialty		Special Requirements/ Skills (if any)	Required Numbers		
	General	Specific		M	F	T
Professors	Statistics	Applied/ Pure	None	8	5	13
Associate Professors	Statistics/ Mathematics	Applied/ Pure	None	15	10	25
Assistant Professors	Statistics/ Mathematics	Applied/ Pure	None	20	15	35
Lecturers	Statistics/ Mathematics	Applied/ Pure	None	10	10	20

Academic Rank	Specialty		Special Requirements/ Skills (if any)	Required Numbers		
	General	Specific		M	F	T
Teaching Assistants	Statistics/ Mathematics	Applied/ Pure	None	10	10	20
Technicians and Laboratory Assistants	Computer Science Lab Technician	Applied/ Pure	Computer hardware and software, including applications and programming.	2	2	4
Administrative and Supportive Staff	Administration	-	Communication, Word processing, Data entry, Organization.	2	2	4
Others (specify)	None	None	None	0	0	0

## 2. Professional Development

### 2.1 Orientation of New Teaching Staff

Describe briefly the process used for orientation of new, visiting and part-time teaching staff

**One of the main tasks of the manager of the program are:**

- Equipping new faculty members with the knowledge and skills that they will need in their first semester in order to progress toward types of objectives, targeted skills, assessment methods, nature of research, role of funding and graduate students etc...
- Explaining to the new, visiting or part time teaching staff how to design, and deliver a course and assess the learning outcomes.
- Explaining to the new, visiting or part time teaching staff the nature of the university environment and constraints.

### 2.2 Professional Development for Teaching Staff

Describe briefly the plan and arrangements for academic and professional development of teaching staff (e.g., teaching & learning strategies, learning outcomes assessment, professional development, etc.)

- Teaching staff are encouraged to attend trainings and workshops for improving their teaching and student assessment skills.
- Teaching staff members are encouraged to reflect on their teaching and research, in order to develop innovative teaching methods and knowledge of research.
- Indeed, each year University awards are presented to academic staff for outstanding contributions to teaching, research supervision and publishing.

## F. Learning Resources, Facilities, and Equipment

### 1. Learning Resources.

Mechanism for providing and quality assurance of learning resources (textbooks, references and other resource materials, including electronic and web-based resources, etc.)

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

**STEP 1:** For each course the department 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:** A committee 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 approbation, 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, medical facilities, classrooms, etc.).

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

**STEP 1:** Evaluation of the locals assigned for the program: 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, a committee 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. Arrangements to Maintain a Healthy and Safe Environment** (According to the nature of the program)

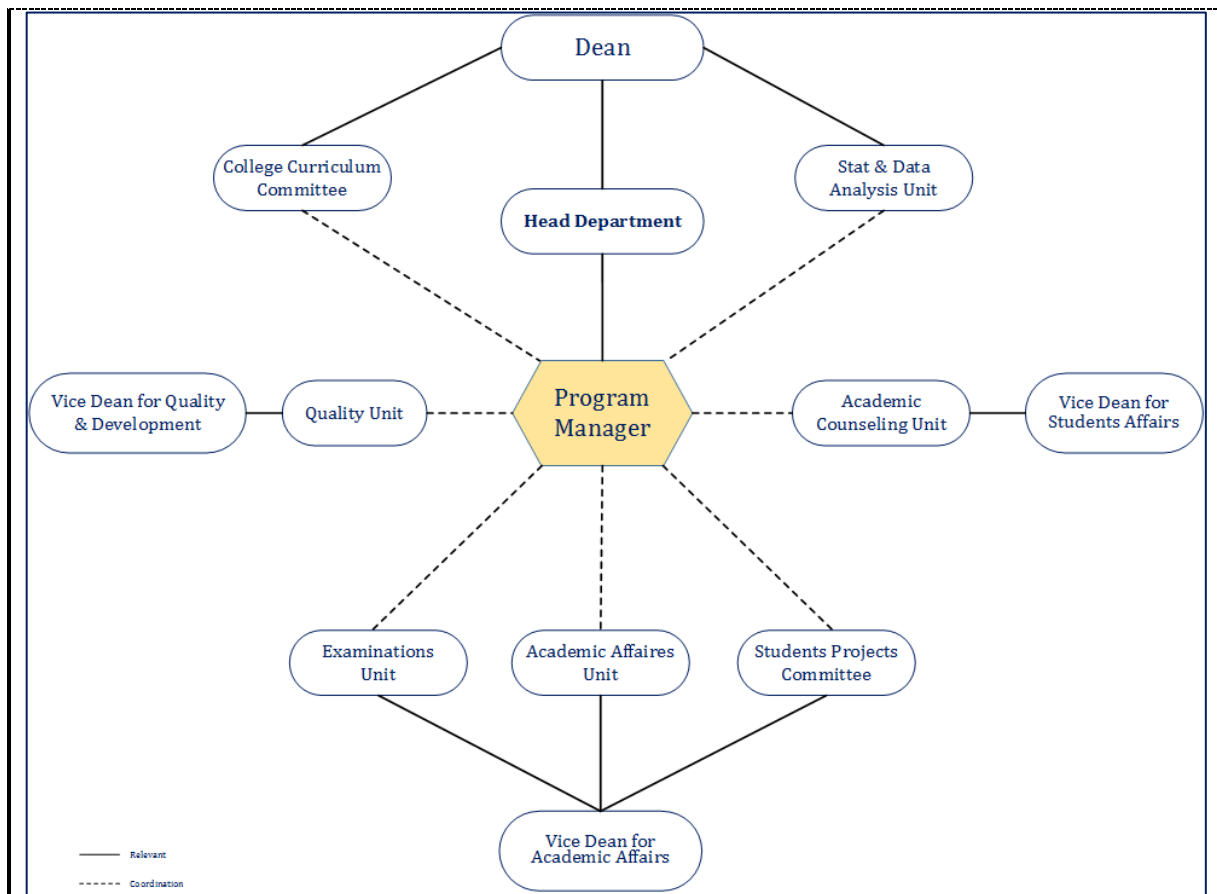
**N.A.**

## G. Program Management and Regulations

### 1. Program Management

#### 1.1 Program Structure

(including boards, councils, units, committees, etc.)



**Figure 1 - Program administrative flowchart**

## 1.2 Stakeholders Involvement

Describe the representation and involvement of stakeholders in the program planning and development. (students, professional bodies, scientific societies, alumni, employers, etc.)

- **The department of Mathematics and Statistics has an Advisory Board who helps it to improve and develop the program.**
- **In this Advisory Board, there are representatives of faculty, employers, graduates and current students.**
- **Questionnaire of the graduated student employers of the program.**

**Students, alumni, employers, and society representatives actively participate through surveys and meetings in expressing their points of view in developing the program. The program collects feedback from these stakeholders through annual surveys. Results of these surveys are included in the annual KPIs report and program report. These results form the bases for drawing improvement plans that are presented to the department council and, if approved, are implemented in the next academic year.**

**In addition, the Applied Statistics Program benefits from the advice and consultation provided by the members of the advisory boards regarding the development of the program to meet the requirements of the labor market. Many of the members of these boards are representatives of various establishments and organizations of the local community.**

**The responsibilities of the advisory board are as follows:**

1. Provide suggestions for developing the Applied Statistics Program.
2. Evaluate the program graduates' attributes, knowledge and skills and how far they meet the needs of the labor market.
3. Suggest the establishment of partnerships between the program and the various establishments of the local society.
4. Provide feedback on the program's performance on the three areas of its mission: education, research, and community service.
5. Connect Applied Statistics Program students with local volunteering programs and opportunities.
6. Familiarize the community with the Applied Statistics Program program and its contributions in the fields of education, research, and community outreach.

The advisory board members are selected for their experience in the field in order to contribute to the program' evaluation, development, and performance improvement. The board meets to discuss the most important topics related to the program.

## 2. Program Regulations

Provide a list of related program regulations, including their link to online version: admission, study and exams, recruitment, appeals and complaint regulations, etc.)

**As University Bachelor regulations and see section D1.**

## H. Program Quality Assurance

### 1. Program Quality Assurance System

Provide online link to quality assurance manual

<https://units.imamu.edu.sa/deanships/Quality/FilesLibrary/Documents/%D9%83%D8%AA%D9%8A%D8%A8%20%D8%AF%D9%84%D9%8A%D9%84%20%D8%A7%D9%84%D8%AC%D9%88%D8%AF%D8%A9%20%20%D8%A7%D9%84%D8%B9%D8%A7%D9%85%20%D9%84%D8%A7%D9%82%D8%B1%D8%A7%D8%B1%20%D8%A7%D9%84%D8%A8%D8%B1%D8%A7%D9%85%D8%AC%20%D9%88%D8%A7%D9%84%D8%AE%D8%B7%D8%B7%20%D8%A7%D9%84%D8%B9%D9%84%D9%85%D9%8A%D8%A9.pdf>

Program quality is monitored through several procedures:

- Courses reports are submitted to the program manager every trimester.
- 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.
- Annual KPIs reports.
- Periodic evaluation by stakeholders: students, alumni, faculty members, job market representatives.
- Periodic operational plan progress reports.
- Benchmarking.
- Academic accreditation.

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

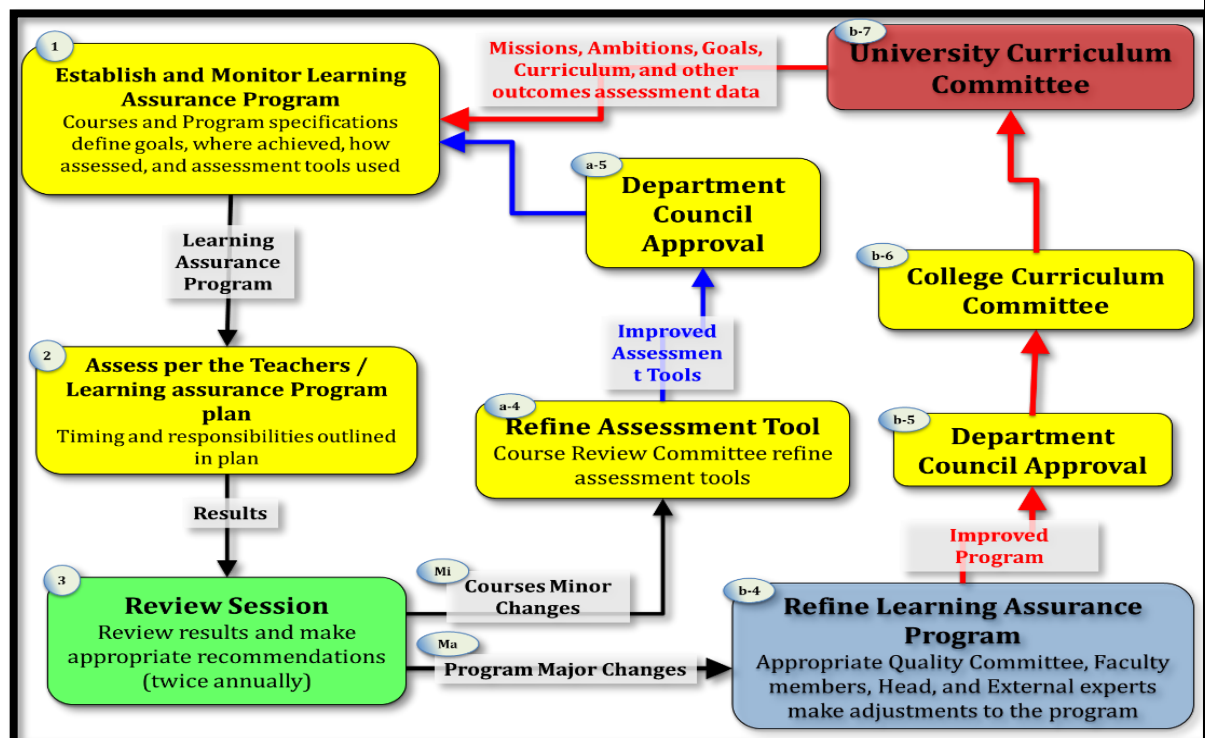


Figure 2 - Teaching\Learning Quality Assurance Process Diagram

These procedures provide multiple points of input that draw a reliable picture of the program's quality and guide improvement plans and initiatives. The reports and data generated from the above-mentioned procedures are reviewed at multiple levels of the university administration to ensure accountability for the implementation of improvement plans.

## 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 course responsible reports 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. Arrangements to Monitor Quality of Courses Taught by other Departments.**

The quality of Applied Statistics Program courses taught by other departments is monitored through end-of-semester course reports and student evaluation. These reports are reviewed by the department council and issues are dealt with through improvement plans.

### **4. Arrangements Used to Ensure the Consistency between Main Campus and Branches (including male and female sections)**

The following arrangements are used to ensure the consistency between main campus and branches (including male and female sections):

- **Centralized mechanism/policy for program and course development:** Permission to introduce changes to the program specification, study plan, and course specifications are only given to the department council in main campus.
- **Integration Committee:** The integration committee play a pivotal role in connecting main and satellite campuses to ensure changes to the program and courses are uniformly implemented across all sections and campuses.
- **Course Coordination:** Course coordination ensures that course coverage, teaching and learning activities, and assessment methods are comparable across all campuses and sections.
- **Annual Program Reports and End-of-Semester Reports:** These two reports are used to monitor for any inconsistency between campuses and sections at the level of courses and the program as a whole. Students of all branches study the same program.
- The department chooses a coordinator for each course and for each branch at the beginning of the semester.
- The coordinators of branches insure that solved exercises are the same for all branches.
- The final exam is common for all branches.

### **5. Arrangements to Apply the Institutional Regulations Governing the Educational and Research Partnerships (if any).**

N.A.

### **6. Assessment Plan for Program Learning Outcomes (PLOs), and Mechanisms of Using its Results in the Development Processes**

Attached.

## **7. Program Evaluation Matrix**



<i>Evaluation Areas/Aspects</i>	<i>Evaluation Sources/References</i>	<i>Evaluation Methods</i>	<i>Evaluation Time</i>
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, partnerships, etc.)

**Evaluation Sources** (students, graduates, alumni, faculty, program leaders, administrative staff, employers, independent reviewers, and others (specify))

**Evaluation Methods** (e.g., Surveys, interviews, visits, etc.)

**Evaluation Time** (e.g., beginning of semesters, end of academic year, etc.)

## 8. Program KPIs\*

The period to achieve the target (2) years.

<i>No</i>	<i>KPIs Code</i>	<i>KPIs</i>	<i>Target</i>	<i>Measurement Methods</i>	<i>Measurement Time</i>
1	KPI-UG-1	Percentage of achieved indicators of the program operational plan objectives	80%	Surveys, Department data	Yearly starting from the first promotion
2	KPI-UG-2	Students' Evaluation of quality of learning experience in the program	3.5/5	surveys	Twice per year
3	KPI-UG-3	Students' evaluation of the quality of the courses	3.5/5	surveys	Twice per year
4	KPI-UG-4	Completion rate	40%	Graduation data	Yearly starting from the first promotion
5	KPI-UG-5	First-year students retention rate	30%	Graduation data	Yearly starting from the first promotion
6	KPI-UG-6	Students' performance in the professional and/or national examinations	First 10%	Department data	Yearly
7	KPI-UG-7	Graduates' employability and enrolment in postgraduate programs	55%	Department data	Yearly
8	KPI-UG-8	Average number of students in the class	15	Department data	Yearly
9	KPI-UG-9	Employers' evaluation of the program graduate's proficiency	3.5/5	surveys	Yearly starting from the first promotion
10	KPI-UG-10	Students' satisfaction with the offered services	3.5/5	surveys	Yearly
11	KPI-UG-11	Ratio of students to teaching staff	12	Department data	Yearly
12	KPI-UG-12	Percentage of teaching staff distribution	15% Prof. 25% Assoc. Prof. 50% Assis. Prof. 10% Other	Department data	Yearly
13	KPI-UG-13	Proportion of teaching staff leaving the program	1%	Department data	Yearly

<i>No</i>	<i>KPIs Code</i>	<i>KPIs</i>	<i>Target</i>	<i>Measurement Methods</i>	<i>Measurement Time</i>
14	KPI-UG-14	Percentage of publications of faculty members	60%	Department data	Yearly
15	KPI-UG-15	Rate of published research per faculty member	0.8	Department data	Yearly
16	KPI-UG-16	Citations rate in refereed journals per faculty member	100	Department data	Yearly
17	KPI-UG-17	Satisfaction of beneficiaries with the learning resources	3/5	surveys	Yearly

\* including KPIs required by NCAAA

## I. Specification Approval Data

<i>Council / Committee</i>	<b>MATHEMATICS AND STATISTICS DEPARTMENT COUNCIL</b>
<i>Reference No.</i>	<b>11/1444</b>
<i>Date</i>	<b>22/04/1444 (16/11/2022)</b>