|  |
| --- |
| **Program Name: Mathematics/Astronomy** |
| **Qualification Level : Bachelor of science (B.Sc.)** |
| **Department: Astronomy and Space Science** |
| **College: Faculty of Science** |
| **Institution: King Abdulaziz University (KAU)** |

**Content**

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# A. Program Identification and General Information

|  |  |  |  |
| --- | --- | --- | --- |
| 1. Program Main Location: | | | |
| Building 90A | | | |
| 2. Branches Offering the Program: | | | |
| None | | | |
| 3. Reasons for Establishing the Program:  (Economic, social, cultural, and technological reasons, and national needs and development, etc.) | | | |
| * To meet the need of the Kingdom of Saudi Arabia for qualified national graduates in the field of Astronomy and Mathematics. * To provide the Saudi universities, institutes, observatories, and the King Abdulaziz City for Science and Technology (KACST) with scientific and academic researchers in the field of astrodynamics (space dynamics) and the relevant applications. * To provide the education sector with qualified teachers. * To provide the governmental and private sectors with scientific experts in the field of Astronomy and Mathematics. | | | |
| 4. Total Credit Hours for Completing the Program: | | | |
| ( 128 hours) | | | |
| 5. Learning Hours:  The length of time that a learner takes to complete learning activities that lead to achievement of program learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times) | | | |
| Minimum 3840 hours – 30 hours per each one credit unit | | | |
| 6. Professional Occupations/Jobs: | | | |
| After the student completes the program, he will be qualified to work as: - Academic assistant researcher in the fields of space dynamics at KAU/other Saudi universities.**-** [King AbdulAziz City for Science and Technology (KACST), and Saudi Space Commission.](https://www.kacst.edu.sa/eng/Pages/default.aspx) - Astronomy lab. and observatory technician.  - Mathematics teacher. | | | |
| 7. Major Tracks/Pathways (if any): Not applicable | | | |
| Major track/pathway | | **Credit hours**  (For each track) | **Professional Occupations/Jobs**  (For each track) |
|  | |  |  |
|  | |  |  |
|  | |  |  |
| 8. Intermediate Exit Points/Awarded Degree (if any): Not applicable | | | |
| Intermediate exit points/awarded degree | **Credit hours** | | |
|  |  | | |
|  |  | | |
|  |  | | |

# B. Mission, Goals, and Learning Outcomes

|  |  |  |
| --- | --- | --- |
| **1. Program Mission:** | | |
| Developing the students' knowledge, skills and competences in education, and culture that related to space dynamics. | | |
| **2. Program Goals:** | | |
| * Prepare cadres able to solve problems competently by identifying the essential parts of a problem and formulating a strategy for solving the problem. Estimate the numerical solution to a problem. Apply appropriate techniques to arrive at a solution, test the correctness of the solution, and interpret the results. * Prepare university graduates able to compete in the job market in variety fields: astronomy; mathematics; dynamics; computer programming and software applications. * Prepare distinguished students for the needs of Kingdom of Saudi Arabia and other Gulf countries in the field of space dynamics. * Enhance the graduates’ knowledge regarding the cosmos exploration, space missions, and analyzing the space data. * Dissemination of astronomy culture in the Arabic societies. * Develop the graduates’ cognitive, scientific writing, oral communication, and information technology skills in the field astrodynamics. * Develop the graduates’ skills in observing night sky through using a wide variety of telescopes and related devices. * The program is also designed to empower student skills to work in a group/individual under supervision of academic staff to develop their own distinguish projects. | | |
| **3. Relationship between Program Mission and Goals and the Mission and Goals of the Institution/College.** | | |
| The program mission and goals are consistent with the department, college, and University missions and goals by emphasizing on the educational and cultural parts by graduating students who qualified in space dynamics. | | |
| **4. Graduate Attributes:** | | |
| The graduates are expected to be:   * Be self-motivated, able to work independently and contribute effectively to team projects. * Be capable of gathering and critiquing information from a variety of sources. * Be intellectually responsible, self-reflective, open-minded, adaptable, curious and creative. * Recognize their social, environmental and civic responsibilities. | | |
| **5.Program learning Outcomes\*** | | |
| **Knowledge** : | | |
| **K1** | | Understand the principles of mathematics and astronomy and basic sciences |
| **K2** | | Outline the universe components on large and small scales. |
| **K3** | | Recall various numerical and analytical methods using in solving the astrodynamics problems |
| **K4** | | Describe theories, terminology, concepts, and methods commonly used in the field of Astrodynamics. |
| **K5** | | Describe the nature, structure, distribution, and formation of astronomical objects, including planets, stars, and galaxies, and the history of the universe. |
| **K6** | | Demonstrate ability to write and express the outcome of their learning in a scholarly manner by Arabic and English languages, in addition to understand the concept of moderate Islam. |
| **Skills** | | |
| **S1** | Use observational data and theoretical models to derive planet, stellar, galactic, and cosmic parameters and characteristics. | |
| **S2** | Explain the structure, morphologies, formation, evolution, and dynamics of various cosmos objects. | |
| **S3** | Assess the validity of physical theories through the design and execution of an experiment, and the interpretation of the data to draw valid scientific conclusions. | |
| **S4** | Explain basic principles, conceptual relationships, and major theoretical concepts in the fields of mathematics and astronomy. | |
| **S5** | Illustrate the ability to manipulate telescopes, detectors, and planetariums and independently conduct experiments. | |
| **S6** | Formulate a coherent written and oral presentation on given astronomy or mathematic topics. | |
| **S7** | Use computer packages to solve astrophysics problems, control telescope motion, and extract and analyze telescope instruments data. | |
| **Competence** | | |
| **C1** | Work in groups to develop his proper communication skills. | |
| **C2** | Participate in preparation, planning and organization of the astronomical and mathematical activities. | |
| **C3** | Ability to construct a concise report/project on a chosen topic in astronomy or mathematics using sources from astronomy and mathematical literature, databases, and on­line catalogs. | |
| **C4** | Critical thinking and ability to apply theoretical knowledge in practice. | |

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

C. Curriculum

**1. Curriculum Structure**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Program Structure** | **Required/ Elective** | **No. of courses** | **Credit**  **Hours** | **Percentage** |
| **Institution Requirements** | Required | **11+6** | **27+14** | **32%** |
| Elective | **-** | **-** |  |
| **College Requirements** | Required | **5** | **9** | **7.0%** |
| Elective | **2** | **6** | **4.7%** |
| **Program Requirements** | Required | **19** | **55** | **43%** |
| Elective | **12** | **17** | **13.3%** |
| **Capstone Course/Project** |  | **-** | **-** |  |
| **Field Experience/ Internship** |  | **-** | **-** |  |
| **Others** |  |  |  |  |
| **Total** | |  | **128** | **100%** |

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

**2. Program Study Plan**

| **Level** | **Course**  **Code** | **Course Title** | **Required**  **or Elective** | **Pre-Requisite**  **Courses** | Credit  Hours | **Type of requirements**  (Institution, College or Department) |
| --- | --- | --- | --- | --- | --- | --- |
| **Level**  **1** | MATH 110 | Differentiation and integration (1) | Required | None | 3 | University |
| PHYS 110 | General Physics | Required | None | 3 | University |
| ELCS 101 | Intensive English (1) | Required | None | 2 | University |
| ELCS 201 | Intensive English (2) | Required | ELCS 101 | 2 | University |
| CPIT 100 | Computer Science | Required | None | 3 | University |
|  |  |  |  |  |  |
| **Level**  **2** | STAT 110 | General Statistics | Required | None | 3 | University |
| CHEM 110 | General Chemistry | Required | None | 3 | University |
| BIO 110 | General Biology (1) | Required | None | 3 | University |
| COM 101 | Communication skills | Required | None | 3 | University |
| ELCS 301 | Intensive English (3) | Required | ELCS 102 | 2 | University |
| ELCS 401 | Intensive English (4) | Required | ELCS 103 | 2 | University |
|  |  |  |  |  |  |
| **Level**  **3** | MATH 202 | Differentiation and integration (2) | Required | MATH 110 | 4 | College |
| ARAB 101 | Arabic Language (1) | Required | None | 3 | University |
| PHYS 202 | General physics (2) | Required | PHYS 110 | 4 | Department |
| ASTR 201 | General Astronomy (1) | Required | None | 4 | Department |
| ISLS 101 | Islamic Studies (1) | Required | None | 2 | University |
| CHEM 200 | Laboratory Safety | Required | None | 1 | College |
|  |  |  |  |  |  |
| **Level**  **4** | ASTR 202 | General Astronomy (2) | Required | ASTR 201 | 4 | Department |
| ASTR 211 | Telescope & accessories | Required | ASTR 201, PHYS 101 | 3 | Department |
| MATH 203 | Differentiation and integration (3) | Required | MATH 202 | 4 | Department |
| MATH 204 | Ordinary Diff. Equation (1) | Required | MATH 203 | 3 | Department. |
| PHYS 281 | Physics Lab. | Required | None | 1 | College |
| CHEM 281 | Chemistry Lab. | Required | None | 1 | College |
|  |  |  |  |  |  |
| **Level**  **5** | ASTR 304 | Computer App. in Astro. | Required | ASTR 202, PHYS 202 | 3 | Department |
| ASTR 331 | Spherical Astronomy (1) | Required | ASTR 202, MATH 202 | 3 | Department |
| ASTR 351 | Stellar Radiate. Char. | Required | ASTR 202, PHYS 202 | 3 | Department |
| ASTR 371 | Physics of Solar System | Required | ASTR 202 | 2 | Department |
| ISLS 201 | Islamic Studies (2) | Required | ISLS 101 | 2 | University |
| MATH 241 | Linear Algebra | Required | MATH 110 | 3 | Phys. Dept. |
| ASTR 321 | Variable & Binary Stars | Required | ASTR 351 | 2 | Department |
|  |  |  |  |  |  |
| **Level**  **6** | ASTR 341 | Celestial Mechanics (1) | Required | ASTR 331 | 3 | Department |
| ASTR 392 | Scientific terminology | Required | None | 2 | Department |
| ASTR \*\*\* | Astro. Elective Course | Elective | None | 4 | Department |
| MATH 251 | Fundamental of mathematics | Required | None | 3 | Department |
| MATH 261 | Analytic Geometry | Required | MATH 110 | 3 | Department |
|  |  |  |  |  |  |
| **Level**  **7** | ASTR 432 | Spherical Astronomy (2) | Required | ASTR 331 | 3 | Department |
| MATH 311 | Real Analysis (1) | Required | MATH 202 | 3 | Department |
| ARAB 201 | Arabic Language (2) | Required | ARAB 101 | 3 | University |
| Free course | Free elective | Elective | None | 3 | University |
| Free course | Free elective | Elective | None | 3 | University |
| ISLS 301 | Islamic Studies (3) | Required | ISLS 102 | 2 | [University](http://art.kau.edu.sa/Default.aspx?Site_ID=125&Lng=EN) |
|  |  |  |  |  |  |
| **Level**  **8** | ASTR 390 | Training course | Required | None | 2 | Department |
| PHYS 352 | Methods of theor. Phys (2) | Required | PHYS 251 | 4 | Department |
| ISLS 401 | Islamic Studies 4 | Required | ISLS 301 | 2 | University |
| ASTR\*\*\* | Astro. Elective | Elective | None | 2 | College |
| MATH\*\*\* | Math. Elective | Elective | None | 4 | Department |
| MATH\*\*\* | Math. Elective | Elective | None | 3 | Department |
|  |  |  |  |  |  |  |

\* Include additional levels if needed

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

**3. Course Specifications**

Insert hyperlink for all course specifications using NCAAA template

|  |
| --- |
| ??????????????????? |

**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** | | | | | | **Skills** | | | | | | | **Competence** | | | |
| **K1** | **K2** | **K3** | **K4** | **K5** | **K6** | **S1** | **S2** | **S3** | **S4** | **S5** | **S6** | **S7** | **C1** | **C2** | **C3** | **C4** |
| MATH 110 | I |  |  |  |  |  |  |  |  | I |  |  |  |  |  |  |  |
| PHYS 110 | I |  |  |  |  |  |  |  |  | I |  |  |  |  |  |  |  |
| CHEM 110 | I |  |  |  |  |  |  |  |  | I |  |  |  |  |  |  |  |
| BIO 110 | I |  |  |  |  |  |  |  |  | I |  |  |  |  |  |  |  |
| STAT 110 | I |  |  |  |  |  |  |  |  | I |  |  |  |  |  |  |  |
| ELCS 101 |  |  |  |  |  | I |  |  |  |  |  |  |  |  |  |  |  |
| ELCS 201 |  |  |  |  |  | I |  |  |  |  |  |  |  |  |  |  |  |
| ELCS 301 |  |  |  |  |  | P |  |  |  |  |  |  |  |  |  |  |  |
| ELCS 401 |  |  |  |  |  | M |  |  |  |  |  |  |  |  |  |  |  |
| CPIT 100 |  |  |  |  |  | I |  |  |  |  |  |  |  |  |  |  |  |
| COM 101 |  |  |  |  |  | I |  |  |  |  |  |  |  |  |  |  |  |
| ISLS 101 |  |  |  |  |  | I |  |  |  |  |  |  |  |  |  |  |  |
| ISLS 201 |  |  |  |  |  | I |  |  |  |  |  |  |  |  |  |  |  |
| ISLS 301 |  |  |  |  |  | P |  |  |  |  |  |  |  |  |  |  |  |
| ISLS 401 |  |  |  |  |  | M |  |  |  |  |  |  |  |  |  |  |  |
| ARAB 101 |  |  |  |  |  | I |  |  |  |  |  |  |  |  |  |  |  |
| ARAB 201 |  |  |  |  |  | P |  |  |  |  |  |  |  |  |  |  |  |
| ASTR 201 |  | I |  | I | I |  |  |  |  |  | I | I |  | I |  |  |  |
| ASTR 390 | M | M | M | M |  |  | M |  | M |  | M | M | M | M |  | M | M |
| PHYS 281 | I |  | I |  |  |  | I |  | I |  |  |  |  | I |  |  |  |
| MATH 202 | I |  | I |  |  |  |  |  | I | I |  |  |  |  |  |  | I |
| CHEM/Bio 200 | I |  | I |  |  |  | I |  |  |  |  | I |  | I |  |  |  |
| CHEM/Bio 281 | I |  | I |  |  |  | I |  |  |  |  | I |  | I |  |  |  |
| PHYS 202 | I |  | I |  |  |  |  |  |  |  | I | I |  |  |  |  | I |
| **ASTR 202** | I | I |  | I |  |  | **I** |  | I |  | I |  |  | I |  |  |  |
| **ASTR 211** | P |  |  | P |  |  | P |  |  |  | P |  | P |  | I | I |  |
| **ASTR 304** | P |  |  | P |  |  | P |  |  |  |  |  | P | P |  |  | P |
| **ASTR 321** | P | P | P | P |  |  | P |  | P |  |  |  |  | P |  | P | P |
| **ASTR 331** | P |  | P | P |  |  |  |  |  | P |  |  | P | P |  |  | P |
| **ASTR 341** | P |  | P | P |  |  |  | P |  | P |  |  |  | P |  |  | P |
| **ASTR 351** | M | M | M | M |  |  |  | P |  | P |  | P |  |  |  | P | P |
| **ASTR 371** |  | M |  |  | M |  |  | M |  | M |  | M |  | M | M |  |  |
| **ASTR 392** |  |  |  | M | M |  |  | M |  | M |  | M |  | M |  |  |  |
| **ASTR 432** |  | M | M | M |  |  |  | M | M | M |  |  |  | M |  |  | M |
| **MATH 203** | I |  | I | I |  |  |  |  |  | I |  |  |  |  |  |  | I |
| **MATH 204** | I |  | I | I |  |  |  |  |  | I |  |  |  |  |  |  | I |
| **MATH 241** | I |  | I | I |  |  |  |  |  | I |  |  |  |  |  |  | I |
| **MATH 251** | I |  | I | I |  |  |  |  |  | I |  |  |  |  |  |  | I |
| **MATH 261** | I |  | I | I |  |  |  |  |  | I |  |  |  |  |  |  | I |
| **MATH 311** | P |  | P | P |  |  |  |  |  | P |  |  |  |  |  |  | P |
| ASTR 203 | P |  | P |  | P |  |  |  |  | P |  | P |  | P |  |  |  |
| ASTR 352 | P |  |  | P | P |  |  | P |  | P |  |  |  |  |  | P | P |
| ASTR 453 |  |  | M | M |  |  |  |  | M | M |  |  |  |  | M | M |  |
| ASTR 472 | M |  |  | M | M |  | **M** | M |  |  |  | M | M |  |  | M |  |
| ASTR 442 | M |  |  |  | M |  |  |  | M | M |  | M |  |  | M | M |  |
| ASTR 481 |  | M |  | M |  |  | **M** |  | M | M |  |  |  |  | M |  |  |
| **MATH 305** | P |  | P |  |  |  |  |  | P | P |  |  |  |  |  |  | P |
| **MATH 312** | P |  | P |  |  |  |  |  | P | P |  |  |  |  |  |  | P |
| **MATH 332** | P |  | P |  |  |  |  |  | P | P |  |  |  |  |  |  | P |
| **MATH 342** | P |  | P |  |  |  |  |  | P | P |  |  |  |  |  |  | P |
| **MATH 413** | M |  | M |  |  |  |  |  | M | M |  |  |  |  |  |  | M |
| **MATH 463** | M |  | M |  |  |  |  |  | M | M |  |  |  |  |  |  | M |

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

* Red color (Astronomy Dept.), Blue color (Mathematics Dept.), Green color (Faculty requirements), Gray (Math Dept.), Brown (University requirements)

|  |
| --- |
| **5. Teaching and learning strategies to achieve program learning outcomes**  Describe policies, teaching and learning strategies, learning experience, and learning activities, including curricular and extra-curricular activities, to achieve the program learning outcomes. |
| 1. Lectures and presentations. 2. Analyze, interpret, and explain observational data and images. 3. Open discussion. 4. Problem solving. 5. Simulation (planetarium). |
| **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. |
| 1. Knowledge: Periodic and final exams; Homework; Assignments. 2. Skills: Periodic and final exams; Homework; Assignments; presentations. 3. Competence: In class oral questions; presentations; projects; writing reports. |

# D. Student Admission and Support:

|  |
| --- |
| **1. Student Admission Requirements** |
| The deanship of students' affairs offer the students admission requirements through the book “How to join the university” http://www.kau.edu.sa/GetFile.aspx?id=29289&fn=1396\_كيف تلتحق بالجامعة.pdf |
| **2. Guidance and Orientation Programs for New Students** |
| At the beginning of each new academic year, the KAU organizes a celebration day to welcome new students. In this event, an academic orientation is scheduled for all new students to acquaint them with the general academic university regulations, policies and services and the student’s rights and responsibilities, as well as university life through campus tours and visits, meetings, lectures, demonstrations and other activities. Each college in the university also conducts an orientation to acquaint students with its specific regulations and the registration process. Later on, Faculty of Science celebrates the newly admitted students and each department of the college presents its educational program/programs. |
| **3. Student Counseling Services**  (academic, career, psychological and social ) |
| 1. There are office hours for each faculty member to assist students in their study area. 2. The Deanship of Admission and Registration is concerned with some aspects of psychological and social counseling. 3. Each student (or few students) shall be assigned an academic advisor from the faculty members when joining the program. The mission of the academic advisor in the program: (1) Follow up the course of the study of the student and register the courses according to the study plan; (2) Define the student's graduation requirements and the information that determines all his scientific commitments during the study period on an ongoing basis in light of the regulations in force; (3) Contributing to solving the student's academic problems; (3) Monitoring the performance of the students during the semester with the possibility of conversion to the affairs of students if necessary.   Student’s Guide for academic advising  <https://prod.kau.edu.sa/admission/er1436/for_std.pdf>  Teaching staff Guide for academic advising  <https://prod.kau.edu.sa/admission/er1436/for_DR.pdf> |
| **4. Support for Special Need Students**  (low achievers, disabled, gifted and talented) |
| Not applicable |

# 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** | **Astrodynamics** | **Stellar physics** |  | 1 | 1 | 7 |
| **Galactic physics** | 1 |  |
| **Celestial Mechanics** | 1 |  |
| **Solar physics** | 1 |  |
| **Dynamical astronomy** | 1 |  |
| **Cosmology and high energy physics** | 1 |  |
| **Associate Professors** | **Astrodynamics** |  |  | **4** | **1** | **5** |
| **Assistant Professors** | **Astrodynamics** |  |  | **4** | **1** | **5** |
| **Lecturers** | **Astrodynamics** |  |  | **3** | **2** | **5** |
| **Teaching Assistants** |  |  |  | **3** | **2** | **5** |
| **Technicians and Laboratory Assistants** |  |  |  | **4** | **1** | **5** |
| **Administrative and Supportive Staff** |  |  |  | **3** | **1** | **4** |
| **Others ( specify )** |  |  |  |  |  |  |

**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 |
| * The University Education Center provides a diploma for the qualification of new faculty, especially those who have recently obtained a Ph.D. degree. The Center also offers many other training courses in the same field. |
| **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.) |
| Deanship of quality and academic accreditation, Deanship of e-learning and distance education, and Deanship of library affairs at KAU offer each semester a list of lectures and workshops aim to raise the efficiency of the teaching staff, in general. The workshops covers a wide range of issues such as teaching methods and strategies, assessment methods, active learning, e-learning, learning tools, ……. |

# 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.) |
| 1. Faculty members search annually for the new textbooks, scientific journals, and related websites on-line. The teaching staff that teach the same course meet annually to select the adequate educational materials for that course. Later on, they submit their recommendations to the program chair for approval. 2. The central library of KAU offers most of educational books in the field of Astronomy and Mathematics. 3. Saudi digital library offers most the scientific journals and E-books in in the field of Astronomy and Mathematics. |
| **2. Facilities and Equipment**  (Library, laboratories, medical facilities, classrooms, etc.). |
| 1. The laboratories committee in the department meet together every semester to plan for the required laboratory materials and devices. Later on, the department chair contacts the Dean of faculty of science to ask him to offer these materials and devices. 2. Faculty of science provides the required classrooms for all program courses. 3. The central library provides most of the program textbooks. |
| **3. Arrangements to Maintain a Healthy and Safe Environment** (According to the nature of the program ) |
| * To provide students in this program with an overview of the general laboratory safety standard, including physical and health hazards of the chemicals, toxins, biological samples, and radiation in the work area, the program offers the course CHEM 200 “general laboratory safety”. By the end of this course the student will be able to understand the following: the meaning of safety, different sources of hazard in the laboratory, what they should know before starting laboratory work, symbols and color codes, what they should do before leaving the laboratory. * The faculty of science (Building 90A) has a fire alarm system and all students laboratories are equipped with fire extinguishers. |

# G. Program Management and Regulations

|  |
| --- |
| **1. Program Management**  **1.1 Program Structure**  (including boards, councils, units, committees, etc.) |
| Program instructor: Dr. Hassan Asiri  Program evaluation and development Committee: Dr.Hassan Asiri, Dr. Alaa Eldin and Dr. Aied Al-Ruhaili  Program curriculum committee: Dr. Saleh Qutub, Dr. Aied Al-Ruhaili, Dr. Hamed Ismail, Dr. Morsi Amer |
| **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 program is developed continuously through the feedback come from students and faculty members (such as student experience, program evaluation, and curriculum evaluation's questionnaires as well as the discussion forums with students and faculty members. A survey of employers' views is also conducted to know the positive and negative points in the alumni of 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.) |
| * Admission guide   <http://www.kau.edu.sa/GetFile.aspx?id=291653&fn=ADMISSION-Guide.pdf>   * Academic Advising   <https://prod.kau.edu.sa/admission/er1436/for_std.pdf>   * Teaching and exams guide   <https://prod.kau.edu.sa/admission/Guides/STUDENT.PDF>  <http://www.kau.edu.sa/GetFile.aspx?id=296309&fn=ST_List.pdf>   * <https://admission.kau.edu.sa/Files/210/Files/159891_ST_List.pdf> * Student’s Rights   <https://studentaffairs.kau.edu.sa/Pages-273911.aspx>   * Quality Assurance Guide for University Performance (Eqaup)   <https://dqaa.kau.edu.sa/Default-723-AR>   * Regulation of the behavior of students   <https://vpg-office.kau.edu.sa/pages-regulations-systems.aspx?Site_ID=234&Lng=AR> |

# H. Program Quality Assurance

|  |
| --- |
| **1. Program Quality Assurance System**  Provide online link to quality assurance manual |
| The guide for program quality assurance is available on the website of the Deanship of quality and academic accreditation, through the application of evaluation and quality assurance of university performance (EQAUP).  <https://dqaa.kau.edu.sa/Default.aspx?Site_ID=723&Lng=AR>  <https://eqaup.kau.edu.sa/Sys_Home.aspx> |
| **2.** Program Quality Monitoring Procedures |
| This process apply through filling the Evaluation and quality assurance of university performance (EQAUP) items each year.  <https://eqaup.kau.edu.sa/Sys_Home.aspx> |
| **3. Arrangements to Monitor Quality of Courses Taught by other Departments.** |
| There is coordination between the head of the astronomy department and other departments to follow the quality of the courses taught by these departments. |
| **4. Arrangements Used to Ensure the Consistency between Main Campus and Branches** (including male and female sections) |
| Not applicable – The program courses taught in the main campus only. |
| **5.** Arrangements to Apply the Institutional Regulations Governing the Educational and Research Partnerships (if any). |
| Not applicable |
| **6.** **Assessment Plan for Program Learning Outcomes (PLOs), and Mechanisms of Using its Results in the Development Processes** |
| The program committee measure annually the program's learning outcomes through the program and student’s experience evaluation questionnaire. Based on the results, the committee suggest the different development processes. |

**7. Program Evaluation Matrix**

| **Evaluation**  **Areas/Aspects** | **Evaluation**  **Sources/References** | **Evaluation Methods** | **Evaluation Time** |
| --- | --- | --- | --- |
| Effectiveness of Teaching & assessment | Students | Program and Student’s experience evaluation questionnaires | End of academic year |
| Program leaning outcomes | Students | Program evaluation questionnaires | End of academic year |
| Program leaning outcomes | Employers | communication | Each two years |
| Learning resources | Students | Survey | End of semester |
| The goals of the program. | Alumni | Interview | Each two years |
| Reviewing the course materials | Faculty staff | Department council | End of academic year |
|  |  |  |  |

**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) year.

| **No** | **KPIs Code** | **KPIs** | **Target** | **Measurement Methods** | **Measurement Time** |
| --- | --- | --- | --- | --- | --- |
| **1** | KPI-P-01 | Percentage of achieved indicators of the program operational plan objectives | 80% | Survey | Each two years |
| **2** | KPI-P-02 | Students' Evaluation of quality of learning experience in the program | 4 | Program Evaluation and Student’s experience Questionnaires | End of academic year |
| **3** | KPI-P-03 | Students' evaluation of the quality of the courses | 5 | Course Evaluation Questionnaire | End of each semester |
| **4** | KPI-P-04 | Completion rate | 90% | Survey | End of academic year |
| **5** | KPI-P-05 | First-year students retention rate | 80% | Survey | End of academic year |
| **6** | KPI-P-06 | Students' performance in the professional and/or national examinations | 85% | Survey | Each two years |
| **7** | KPI-P-07 | Graduates’ employability and enrolment in postgraduate programs | 80% | Survey | Each two years |
| **8** | KPI-P-08 | Average number of students in the class | 6 | Survey | End of academic year |
| **9** | KPI-P-09 | Employers' evaluation of the program graduates proficiency | 4 | Survey | Each two years |
| **10** | KPI-P-10 | Students' satisfaction with the offered services | 4 | Student’s experience Evaluation Questionnaire | Each two years |
| **11** | KPI-P-11 | Ratio of students to teaching staff Percentage of teaching staff distribution | 5:1 | Survey | Each two years |
| **12** | KPI-P-12 | Percentage of teaching staff distribution | 80% | Through Department chair | Each two years |
| **13** | KPI-P-13 | Proportion of teaching staff leaving the program | 0% | Through department chair | Beginning of each academic year. |
| **14** | KPI-P-14 | Percentage of publications of faculty members | 80% | The department chair collect the publication lists from the faculty members each year | Beginning of each academic year. |
| **15** | KPI-P-15 | Rate of published research per faculty member | 4 | Through department chair | Beginning of each academic year. |
| **16** | KPI-P-16 | Citations rate in refereed journals per faculty member | 10% | Survey the Web of Science (knowledge) database. | Beginning of each academic year. |
| **17** | KPI-P-17 | Satisfaction of beneficiaries with the learning resources | 4 | Student’s experience Evaluation Questionnaire | End of academic year |

\* including KPIs required by NCAAA

# I. Specification Approval Data

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| --- | --- |
| **Council / Committee** | **5th committee – 2nd item – Academic year 1440/1441** |
| **Reference No.** | **27322- د** |
| **Date** | **22-02-1441** |