



2023

TP-151

Program Specification

— (Bachelor)

Program: **Bachelor of Science in Physics**

Program Code (as per Saudi university ranking): 0533

Qualification Level: **6th level (Bachelor degree)**

Department: **Physics**

College: **Science**

Institution: **King Khalid University**

Program Specification: New updated*

Last Review Date: **1445/2/1**

*Attach the previous version of the Program Specification.



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A. Program Identification and General Information

1. Program's Main Location :

College of Science, Main Campus
King Khalid University
Saudi Arabia
Asir - Abha

2. Branches Offering the Program (if any):

College of Science, King Abdullah Road Campus (Female),
King Khalid University
Saudi Arabia
Asir - Abha

3. Partnerships with other parties (if any) and the nature of each:

This academic program currently does not have any official partnerships, but there are a newly proposed established partnerships with external parties.

4. Professions/jobs for which students are qualified

- Teaching
- Academic sector
- Research in Science
- Standards, Metrology, and Quality professions
- Energy and its industries professions

5. Relevant occupational/ Professional sectors:

- Education
- Academia
- Medicine (Radiology and Medical physics)
- Environmental sector
- Industrial sectors

6. Major Tracks/Pathways (if any):

Major track/pathway	Credit hours (For each track)	Professions/jobs (For each track)
1. Physics	126	Mentioned above

7. Exit Points/Awarded Degree (if any):

exit points/awarded degree	Credit hours
Not applicable	

8. Total credit hours: (126)





B. Mission, Objectives, and Program Learning Outcomes

1. Program Mission:

Provide excellence in higher education and scientific research in physics, prepare highly qualified graduates who contribute to the community service and the sustainable development of the labour market.

2. Program Goals:

The Department of Physics is committed to excellence in teaching and research, with a focus on:

1. Contributing to national development plans and the goals of Vision 2030.
2. Providing a motivating academic environment for physics education, learning, and research.
3. Developing graduates' skills for the labour market and sustainable development
4. Equipping students with a solid background in physics concepts and skills
5. Conducting basic and applied research to support the development of the kingdom
6. To emphasize the importance of physics in knowledge and research for the development of society

To achieve these goals, the department provides high-quality courses, creates an appropriate scientific environment, attracts and develops faculty members, and actively engages with society.

3. Program Learning Outcomes*

Knowledge and Understanding

K1	Acquire scientific knowledge, facts, and concepts in physics and related sciences.
K2	Develop scientific skills and methods, including experimental design and data analysis
K3	Develop a deep understanding of the fundamental principles of physics and their applications to real-world problems
K4	Develop thinking and research skills using scientific methodology

Skills

S1	Apply physics concepts and theories to analyze, evaluate, and interpret scientific data
S2	Develop the ability to self-study and acquire skills in e-learning and effective communication skills
S3	Demonstrate independence and teamwork and leadership skills
S4	Design, develop, and implement physical solutions using mathematical and experimental tools

Values, Autonomy, and Responsibility

V1	Collaborate effectively with others to participate in national strategies, address community issues, and volunteer
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V2	Practice constructive criticism, self-assessment, and continuous learning
V3	Communicate effectively in writing and orally
V4	Act ethically and professionally, take initiative and responsibility

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

C. Curriculum

1. Curriculum Structure

Program Structure	Required/ Elective	No. of courses	Credit Hours	Percentage
Institution Requirements	Required	6	12	9.524%
	Elective	0	0	0%
College Requirements	Required	8	28	22.222 %
	Elective	0	0	0
Program Requirements	Required	34	83	65.873%
	Elective	0	0	0
Capstone Course/Project		1	3	2.381%
Field Training/ Internship		0	0	0%
Residency year				
Others		None	0	0
Total		49	126	100%

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

2. Program Courses

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
Level 1	101Phys-4	Introduction to physics	required	-	4	Program
	016Lang-6	English language	required	-	6	College
	101Chem-4	General chemistry	required	-	4	College
	101Islam-2	Islamic culture	required	-	2	University
Level 2	101Comp-3	Computer	required	-	3	College
	101Bio-4	General biology	required	-	4	College
	101Math-4	Calculus 1	required	-	3	College
	110Lang-3	Scientific English	required	016Lang-6	3	College
	112Islam-2	Islamic culture	required	-	2	University
	201Arab-2	Arabic language skills	required	-	2	University
Level	101Comp-2	Computer	required	101Comp-3	2	College
	113Islam-3	Islamic culture	required	-	2	University

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours	Type of requirements (Institution, College, or Program)
3	202Math-3	Calculus 2	required	101Math-3	3	College
	202Arab-2	Arabic writing	required	-	2	University
	211Phys-3	Mechanics 1	required	101Phys-4	3	Program
	220Phys-2	Electricity and magnetism 1	required	101Math-3	2	Program
	241Phys-3	Heat and thermodynamics	required	101Math-3	3	Program
Level 4	114Islam-2	Islamic culture 4	required	-	2	University
	213Phys-3	Mechanics 2	required	211Phys-3	3	Program
	223Phys-2	Electricity and magnetism	required	-	2	Program
	224Phys-2	Electricity and magnetism 2	required	220Phys-2	2	Program
	232Phys-2	Waves and oscillations 1	required	101Phys-4	2	Program
	242Phys-1	Heat and mechanics (exp.)	required	-	1	Program
251Phys-2	Mathematical physics 1	required	202Math-3	2	program	
Level 5	303Math-3	Calculus	required	202Math-3	3	Program
	330Phys-3	Light and optics	required	101Phys-4	3	Program
	333Phys-2	Waves and oscillations 2	required	232Phys-2	2	Program
	334Phys-2	Light and optics (exp.)	required	-	2	Program
	351Phys-2	Mathematical physics 2	required	251Phys-3	2	Program
353Phys-3	Modern physics	required	-	3	Program	
Level 6	301Comp-3	Computer programming in physics	required	-	2	Program
	324Phys-3	Electronics	required	220Phys-2	3	Program
	325Phys-2	Electronics (exp.)	required	-	2	Program
	326Phys-2	Electromagnetic theory 1	required	224Phys-2	2	Program
	343Phy-3	Statistical physics	required	251Phys-3	3	Program
354Phys-3	Quantum physics 1	required	353Phys-3	3	Program	
Level 7	427Phys-2	Electromagnetic theory 2	required	326Phys-2	2	Program
	455Phys-2	Modern and atomic physics (exp.)	required	353Phys-2	2	Program
	461Phys-3	Atomic physics and spectra	required	353Phys-2	3	Program
	471Phys-3	Solid state physics 1	required	-	3	Program
	481Phys-3	Nuclear physics 1	required	-	3	Program
492Phys-3	Graduation research	required	-	3	Program	
Level 8	456Phys-2	Quantum mechanics 2	required	354Phys-3	2	Program
	462Phys-2	Optics and laser	required	326Phys-2	2	Program
	472Phys-2	Solid state physics 2	required	471Phys-3	2	Program
	473Phys-2	Solid state physics (exp.)	required	471Phys-3	2	Program
	482Phys-2	Nuclear physics 2	required	481Phys-3	2	Program
	483Phys-2	Nuclear physics (exp.)	required	481Phys-3	2	Program
491Phys-2	Special topics	required	-	2	Program	

* Include additional levels (for three semesters option or if needed).



** Add a table for the courses of each track (if any)

3. Course Specifications:

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

All courses in the program are described in accordance with the NCAAA template, version 2023. The course descriptions are available in an attached file and on the department's website.

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, Autonomy, and Responsibility			
	K1	K2	K3	K4	S1	S2	S3	S4	V1	V2	V3	V4
101Phys-4	I		I		I		I	I	I	I		
211Phys-3	I	I	I		I	I	I		I	I		
220Phys-2	I		I		I	I	I	I	I	I		
241Phys-3	I		I	I	I	I				I	I	
213Phys-3	P		P		P	P	P	P	P	P		
223Phys-2	P	P			P	P	P	P	P	P		
224Phys-2	P	P	P	P	P	P	P	P	P	P		
232Phys-2	P	P	P		P	P	P	P	P	P		
242Phys-1	P		P		P	P			P			P
251Phys-2	P	P	P	P	P		P	P	P	P		
330Phys-3	P	P		P	P	P	P	P	P		P	
333Phys-2	P		P	P	P	P	P	P	P	P		
334Phys-2	P	P	P	P	P	P	P	P	P	P		
351Phys-2	P	P	P	P	P	P	P	P	P	P		
353Phys-3	M	M	M	M	M	M	M	M	M	M		
324Phys-3	M		M	M	M	M	M	M	M	M		
325Phys-2	M	M	M	M	M	M	M	M	M	M	M	
326Phys-2	M	M	M		M	M	M	M	M	M		
343Phy-3	M	M	M	M	M	M	M	M	M	M		
354Phys-3	M	M	M		M	M	M	M	M	M		



Course code & No.	Program Learning Outcomes											
	Knowledge and understanding				Skills				Values, Autonomy, and Responsibility			
	K1	K2	K3	K4	S1	S2	S3	S4	V1	V2	V3	V4
427Phys-2	M	M	M		M	M	M	M	M	M		
455Phys-2	M	M	M		M	M		M	M	M		M
461Phys-3	M	M	M	M	M	M		M	M	M		
471Phys-3	M	M		M	M	M		M	M			
481Phys-3	M	M	M	M	M	M	M		M			
492Phys-3	M	M	M	M	M	M	M	M	M	M	M	
456Phys-2	M	M	M	M	M	M		M	M	M		
462Phys-2	M	M	M	M	M	M	M	M	M	M		
472Phys-2	M	M		M	M	M	M	M	M	M		M
473Phys-2	M	M		M	M		M	M	M	M	M	
482Phys-2	M	M	M	M	M	M	M	M	M	M		M
483Phys-2	M	M	M	M	M	M	M	M	M	M	M	M
491Phys-2	M	M	M	M	M	M		M	M	M	M	

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

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

Describe teaching and learning strategies, including curricular and extra-curricular activities, to achieve the program learning outcomes in all areas.

Faculty members implement a variety of learning strategies to ensure that students achieve the program learning outcomes where students be able to recognize knowledge related to physical sciences and keep pace with its advanced processes, techniques, applications. These strategies include class lectures, e-learning methods, Group discussion, Self-study, Scientific discussion in group, Physics Websites, electronic lectures, Interactive teaching sessions, discussions and oral interviews, practical lecture, laboratory experiments and small research projects, whether collective or individual.

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 twice in the bachelor program's cycle and once in other degrees).

See

https://drive.google.com/file/d/1boOTMgIAdo--1d_27ool4yMzqJMPz1/view?usp=drive_link

Program Learning Outcomes Assessment
Program learning outcomes (PLOs) are assessed on the basis of closely related course learning outcomes (CLOs), which are mapped to CLOs using a mapping matrix. A mixed assessment method is used, incorporating both direct and indirect assessment methods.





Direct assessment methods involve the student directly and measure the extent to which they have learned the material. Some common direct assessment methods used in physics programs include:

- Homework
- Quizzes
- Essays
- Projects
- Lab reports
- Senior thesis
- Lab experiments
- Presentations
- Written and oral exams
- Discussion groups

Indirect assessment methods measure implicit indicators of student learning, such as skills and competencies. Some common indirect assessment methods used includes:

- Surveys
- Questionnaires
- Interviews
- Periodic and annual reports

CLO assessment results are used to assess PLOs by constructing a PLO assessment matrix that maps CLOs to PLOs with a weighted percentage for each CLO. The type of course (core, elective, theoretical, or practical) and the level of mastery (introduced, practiced, or mastered) are also taken into account. The assessment results are then analyzed and compared to the planned results. A development plan is then designed to address any shortcomings and raise the level of success.

Steps in the PLO Assessment Cycle

1. Develop, review, or revise PLOs
2. Develop, review, or revise an assessment method for each PLO:
 - Map PLOs to courses required for the degree or certificate
 - Map PLOs to key performance indicators (KPIs)
3. Assess the PLOs
4. Analyze the assessment results
5. Apply the results to improve outcomes and then assess the effectiveness of these improvements

D. Student Admission and Support:

1. Student Admission Requirements

The Deanship of Admission and Registration determines the admission requirements for the physics program, considering the university's policies, the Ministry of Education's guidelines, and the program's capacity. Please see the university handbook or bulletin for a detailed description of the admission requirements, including any course or experience prerequisites.

Regulation concerning admission may be seen in these links:

- Guide of admission to the KKU
<https://www.kku.edu.sa/sites/default/files/2020-10/KKU1442.pdf>
- Student's guide for rights and duties
https://www.kku.edu.sa/sites/default/files/general_files/pdf/Administration/guide.pdf
- Student's guide of KKU services



<https://dar.kku.edu.sa/sites/dar.kku.edu.sa/files/%D8%A7%D9%84%D8%AE%D8%AF%D9%85%D8%A7%D8%AA.pdf>

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).

Orientation for New Students

- The department's Academic Advising Committee informs new students about the study plan and registration process.
- The department's e-learning committee provides training on how to use the Blackboard application https://youtu.be/LnErEtwcfPk?si=bMmrI_ruAI7ok18M.
- The college registrar and department registrars work together for one week at the beginning of the semester to help new students register for courses according to the program plan.
- The social committee gives an introductory lecture about the program.
- The College Student Forum official communicates with new students to invite them to join the forum and participate in its cultural, scientific, and sports activities.

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 Student Affairs and Graduates Committee supports students through the Deanship of Student Affairs, represented in the units of guidance and counseling in the Deanship (<https://sa.kku.edu.sa/ar/content/154>), and in the colleges by developing and implementing a student guidance plan and system

- Providing office hours to assist students.
- Organizing and promoting student activities (sports, social, cultural, etc.) through student committees and clubs such as
 - Student Clubs Unit, KKU (<https://clubs.kku.edu.sa/ar/clubsunit>)
 - College clubs (<https://clubs.kku.edu.sa/ar/collegeclubs>)
 - College of Science Club (<https://clubs.kku.edu.sa/ar/CScience>)
- Promoting academic guidance and the role of the academic advisor in helping students plan their future education.
- Fostering trust between students and faculty members

4. Special Support

(Low achievers, disabled, gifted, and talented students).

King Khalid University, including the Department of Physics, attaches special importance to supporting students with special needs. Here are some examples of the support and assistance that the department provides:

- Gifted students: The department supports gifted students by adopting their ideas and projects and providing them with the materials, equipment, and supplies they need to succeed. <https://ctc.kku.edu.sa>
- Incoming students: The department welcomes gifted students from high schools and similar programs and helps them with the necessary procedures, answering their questions, and providing guidance.
- Students with disabilities: The department does not discriminate against students with disabilities who wish to join the program.



<https://sa.kku.edu.sa/ar/node/728>

- Students with financial need: The department helps students who are registered in the program with civilian income and provides them with the books and supplies they need, in addition to the monthly financial support they receive from the Deanship of Admission and Registration.

<https://sa.kku.edu.sa/ar/node/703>

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	12	All fields of physics		7	5	12
Associate Professor	25	All fields of physics		12	8	20
Assistant Professor	30	All fields of physics		14	10	24
Lecturer	10	Physics		5	5	10
Teaching Assistant	10	Physics		2	2	4
Technicians and Laboratory Assistant	6	Engineering		4	3	7
Administrative and Supportive Staff	6	Management		2	2	4
Others (specify)	None	none		0	0	0

F. Learning Resources, Facilities, and Equipment:

1. Learning Resources

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

King Khalid University provides students with a variety of learning resources, including reference books, scientific journals, electronic materials, and educational laboratories.





Books

- All required books, including textbooks and essential references, are listed in course descriptions. These books are up-to-date and published by international publishing houses, and they are used as learning resources at the most prestigious international universities.
- All required books are available in the central university library and the department library. Faculty members and students can access both print and electronic copies of the latest editions. The book collection is continuously updated based on feedback from course lecturers, the plans and curricula committee, and the development and quality committee.

<https://lib.kku.edu.sa/ar/node/691>

Electronic Materials

E-learning resources, such as electronic lectures, electronic platforms, and periodicals, are important complements and enrichments to the courses offered by the department. The university provides all the required e-learning resources through:

- An excellent internet connection that covers all university facilities
- The Blackboard electronic platform, which is used for both systematic and training e-learning, in a complete or blended manner. Blackboard is easy to use, and periodic training courses are offered to help students improve their educational performance using the platform.
- A large number of scientific journals and publishing houses, such as Elsevier. Students can also access the Saudi Digital Library using their Student IDs.

<https://www.kku.edu.sa/ar/portfolio/5134>

2. Facilities and Equipment

(Library, laboratories, classrooms, etc.)

Physics Program Facilities:

The physics program has all the facilities it needs to achieve its goals and learning outcomes, including:

- Library: The university has a three-story central library with a large collection of scientific books, including those related to physics. The library also has study and reading rooms with good ventilation, adequate lighting, and a quiet environment. The physics program also has its own library with a collection of books specialized in the various branches of physics.
<https://lib.kku.edu.sa>
- Laboratories: The physics department has laboratories equipped with the necessary electronic materials, tools, and measuring devices that cover all practical courses. The laboratories are subject to continuous development and updating through the Technical Committee.
<https://science.kku.edu.sa/ar/node/220>
- Classrooms: The College of Science has many air-conditioned classrooms with chairs with built-in tables for 40 to 50 students. Each classroom has a data show, an office computer, and a whiteboard. The physics program also has well-equipped classrooms in the female students' branch of the college.
- Demonstration rooms: The physics program has a seminar room within the e-learning lab for presentations of graduation projects and other seminar activities.

In addition, the physics department provides the following:

- Teaching techniques: Each classroom is equipped with an office computer, data display, and whiteboard with erasable writing pens. The program also provides the required educational aids that the lecturer raises in order to achieve the course learning outcomes.
- Software: The university allows students and faculty members to obtain the programs and operating systems necessary for the success of the educational process, as well as the implementation of the tasks assigned to them. The university also provides any educational programs necessary to achieve similar outputs.





The Physics Program is monitored and evaluated on the basis of both internal and external data. Internal data sources include student feedback, faculty feedback, and program leadership reports. External data sources include government institutions and employers.

Program quality control procedures are carried out according to the program plan and last for four years (graduating batch). The monitoring process is then evaluated as a whole and a development plan is drawn up based on the recommendations.

The indicators of the monitoring process include:

- Program mission
- Program objectives
- Program outcomes
- Program plan
- Course description
- Faculty members
- Learning resources
- Laboratories
- Facilities
- Accommodation

The following monitoring mechanisms are used:

- Course reports (semester)
- Program reports (annual)
- Student surveys (quarterly)
- Graduate opinion polls (fourth-year students)
- Faculty member opinion polls (annual)
- Surveys of authorities and employers' opinions (after the first batch graduation)
- Employee surveys (every two years)

3. Procedures Used to Ensure the Consistency between the Main Campus and Branches (including male and female sections).

The main campus and the sections (male and female) coordinate to ensure consistency and achieve the program's objectives and educational outcomes at the same level as possible.

Quality control of the program in all sections is ensured through the following measures:

- Session reports
- Annual reports
- Student and faculty opinion polls
- Formation of a quality committee for all branches, consisting of the heads of quality committees in the various branches
- Continuous communication between branches
- Reciprocal visits

4. Assessment Plan for Program Learning Outcomes (PLOs),

An assessment plan is a comprehensive plan to ensure that all assessment indicators for each learning outcome (LO) are thoroughly measured. It is a two-dimensional matrix, with learning outcomes and competencies or assessment indicators on one dimension, and competency level, place, and time of assessment on the other dimension. Such plans must be developed for both program learning outcomes (PLOs) and course learning outcomes (CLOs).

Assessment plans should:



- Assess all learning outcome indicators to ensure that the achievement of each learning outcome is measured.
- Use a balanced assessment approach to measure all skills, knowledge, and attitudes. The competency level for each learning outcome should be determined, up to the highest level.
- Clearly identify PLOs and CLOs, with emphasis on PLOs.
- Be the result of thorough discussion among faculty members involved in the program.
- Be integrated with the curriculum.
- Be continuous.
- Involve various assessments, including quantitative, qualitative, direct, and indirect assessments.
- Use assessment outcomes to improve activities, not just to assess students.
- Determine the tools that will validly and accurately measure learning outcomes through their indicators.
- Prepare a triangulation strategy so that each indicator is measured at least three times to ensure measurement validity.
- Provide a data collection and storage method for the measurement results used for assessment.
- Utilize assessment outcomes for program improvement, in addition to using them for student assessment.

At the end of the program, all competencies (which are the components of PLOs) must be measured and there must be evidence that they have been achieved. These learning outcomes can later be used to improve activities.

1. Program Evaluation Matrix

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
leadership	, Faculty	Questionnaires and Surveys	Every academic year
	Employees		
	Students		
	Graduates, Alumni		
Effectiveness of Teaching & assessment	Faculty	Reports	Every semester
	Evaluation Committee	Reports Analyze	
	Students	Questionnaires	
Learning resources	Faculty	Questionnaires	Every semester
	Technical Committee	Visits, Reports	
	Students	Questionnaires,	
	Plans and Curricula Committee	Interviews, Reports Analyze	
Community Service	visitors	Questionnaires	After every visit
	employers		Every academic year
partnerships	Employers	Surveys	Every academic year
			After batch graduating

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.)



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6. Program KPIs*

The period to achieve the target (4) years.

No.	KPIs Code	KPIs	Targeted Level	Measurement Methods	Measurement Time
1.	KPI-P-01	Students' Evaluation of Quality of learning experience in the Program	70%	A questionnaire	semester
2.	KPI-P-02	Students' evaluation of the quality of the courses	75%	A questionnaire Course report	semester
3.	KPI-P-03	Completion rate	75%	Program report A questionnaire	Annually
4.	KPI-P-04	First-year students' retention rate	80%	Final exam records (academia)	Annually
5.	KPI-P-05	Students' performance in the professional and/or national examinations	70%	Undergraduate General Aptitude Test (Qiyas)	Annually
6.	KPI-P-06	Graduates' employability and enrolment in postgraduate programs	75%	Questionnaire for graduates Alumni unit information	Annually
7.	KPI-P-07	Employers' evaluation of the program graduates proficiency	70%	Questionnaire	Annually
8.	KPI-P-08	Ratio of students to teaching staff	20:1	Student Statistics (Academic Advising Committee) Faculty Members Statistics (Human Resources Committee)	Annually
9.	KPI-P-09	Percentage of publications of faculty members	25% of the publications of the College of Science	Records of the Scientific Research Committee the digital library Google scholar	Annually
10	KPI-P-10	Rate of published research per faculty member	2paper/member	Records of the Scientific Research Committee the digital library Google scholar	Annually





11	KPI-P-11	Citations rate in refereed journals per faculty member	10 citation /member	Records of the Scientific Research Committee the digital library Google scholar	Annually
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*including KPIs required by NCAAA

H. Specification Approval Data:

Council / Committee	<i>Planning and Curriculum Committee & Development and Quality Committee</i>
Reference No.	
Date	21/9/2023

