١٤٢٧
2006
كلية العلوم
Faculty of Science

Chemistry Department Guide

نتعلم .. لنشارك وطننا العطاء

Faculty of Science

كلية العلوم

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Faculty of Science

A) Background

History:

Faculty of Science, established under the decision of the Board of Higher Education No. 15/37/1426 H. And the approval of the Custodian of the Two Holy Prime Minister and Chairman of the Board of Higher Education may God preserve him guidance No. 9683 / m. E on 5/8/1426 and was a branch of the King Abdul Aziz University in Tabuk including the following departments which offers the Bachelor's degree; Mathematics, Physics, Chemistry and Biology.

B) Vision, Mission, and Objectives

Faculty of Science Vision

"Distinguished faculty in education and scientific research to serve the community"

Faculty of Science Mission

" Offering an outstanding academic learning to graduate qualified human cadres in the theoretical and applied sciences to meet the needs of the labour market and society in accordance with an environment that supports scientific research"

Objectives

1. To improve students' ability and capability in the various faculty programs and work to develop new programs for graduate studies in all departments.
2. To enhance faculty staff efficiency and attract more expertise and dispatch distinct students to obtain M.Sc. degree and doctorate.
3. To increase the effectiveness of the means of improvement and qualitative development of the faculty; by holding specialized scientific seminars and scientific conferences, and feedback from students about faculty members.
4. To assess and design modern curricula for the Faculty, and to study the creation of new programs in the faculty in line with development requirements and the needs of the labor market.
5. To cooperate and coordinate with Faculties of Science at other national and international institutions, and stand on the experiences of similar faculties inside and outside the Kingdom in the areas of faculty programs in order to obtain the academic accreditation.
6. To encourage faculty research activities for community uplift, and develop the system of scientific research, by establishing state of the art research laboratories, and the issuance of a special scientific journal for the faculty.

C) Academic Departments

1. Department of Biology
2. Department of Chemistry.
3. Department of Physics
4. Department of Mathematics
5. Department of Biochemistry

6. Department of statistics

D) Degrees Offered

1. Bachelor of Science in Statistics
2. Bachelor of Science in Biology
3. Bachelor of Science in Chemistry.
4. Bachelor of Science in Physics
5. Bachelor of Science in Mathematics
6. Bachelor of Science in Biochemistry

1- Department of Chemistry:

A) History:

The department of Chemistry, Faculty of Science at the University of Tabuk, has established on the academic year 2008 – 2009; three years later after the establishment of the faculty.

B) Vision, Mission and Objectives:

Vision:

Leadership in chemistry and its applications that serve the community

Mission:

Qualifying distinguished human cadres and carrying out scientific research in various fields of chemistry to serve and develop the community through effective participation

Objectives:

1. Graduation of students at a level consistent with national and international standards and able to compete in the labor market.
2. Improving the level of scientific research and launch of post-graduate programs.
3. Community service and problem solving in the local environment through scientific research and community participation.
4. Qualification for academic accreditation from the National Center for Academic Accreditation and Evaluation.

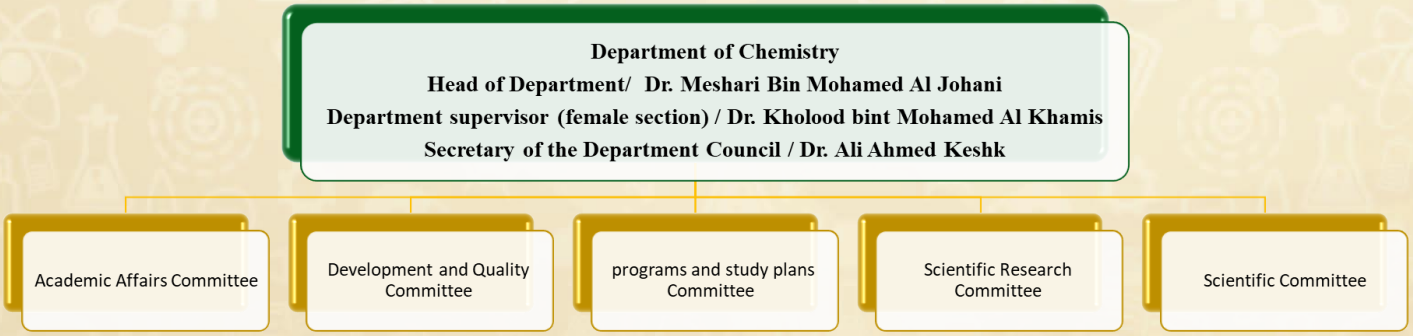
Brief note on the study plan:

The courses are divided through eight semesters (including two for the preparatory year). The courses are classified into two categories - compulsory, and restricted-elective (from the department courses).

Requirements of Degree

The department of Chemistry at the University of Tabuk awards the Bachelor of Science (B.Sc.) degree according to the credit hours system (total 132 Credit Hours). In order to award the B.Sc., the GPA of the student should not be less than 2 (fair).

The organizational structure of the Department of Chemistry



Study Plan

Study Plan General Components

Prerequisites		Credits	Courses	Weights %
University Courses	Compulsory	20	9	
College Courses	Compulsory	25	7	
Department Courses	Compulsory	72	26	
	Electives	8	4	
Courses from Mathematics Department	Compulsory	8	3	
Total		133	49	

Note:

- University Courses (10-20%)
- Faculty Courses (10-20%)
- Department Courses (60-80%)
  - Compulsory (50%)
  - Electives (6-8%)
  - Free Courses -if any- (2-4%)

University Prerequisites

Courses Title		Course Code	Credits		%	Prerequisites
			Credit	Contact		
1	Communication Skills	COMM 001	2	2		
2	Computer Skills	CSC 001	3	4		
3	Learning, Thinking, &Research Skills	LTS 001	3	4		
4	Language Skills	ARAB 101	2	2		
5	Islamic Culture 1	ISLS 101	2	2		
6	Islamic Culture 2	ISLS 201	2	2		ISLS 101
7	Islamic Culture 3	ISLS 301	2	2		ISLS 201
8	Islamic Culture 4	ISLS 401	2	2		ISLS 301
9	Writing Skills	ARAB 201	2	1		ARAB 101
Total			20	22		

College Compulsory Prerequisites

Courses Title		Course Code	Contact Hours			Credit	%	Prerequisites
			Theoretical	Practical	Training			
1	Mathematics 1	MATH 100	3			3		
2	General Physics	PHYS 101	3			3		
3	English 1	ELS 001	15			5		
4	English 2	ELS 002	15			5		ELS 001
5	General Biology	BIO 101	3			3		
6	General Chemistry	CHEM 101	3			3		
7	Mathematics 2	MATH 101	3			3		MATH 100
Total			45			25		

Department Elective Prerequisites

Courses Title		Course Code	Contact Hours			Credit	%	Prerequisites
			Theoretical	Practical	Training			
1	Chemistry of Cement	CHEM 324	2			2		CHEM 322
2	Environmental Chemistry	CHEM 325	2			2		CHEM 311
3	Chemotherapy	CHEM 326	2			2		CHEM 232
4	Chemistry of Synthetic Detergents	CHEM 333	1	1		2		CHEM 232
5	Chemistry of Nucleic Acids	CHEM 434	2			2		CHEM 232
6	Chemistry of Dyes	CHEM 432	2			2		CHEM 331
7	Analysis of Industrial Products	CHEM 415	1	1		2		CHEM 312
8	Biochemistry	CHEM 438	1	1		2		CHEM 232
9	Technology of Anti-corrosion Coatings	CHEM 445	2			2		CHEM 441
10	Chemistry of Natural Products	CHEM 337	1	1		2		CHEM 232
11	Chemistry of Polymers	CHEM 436	1	1		2		CHEM 431
12	Chemistry of Petroleum and Petrochemicals	CHEM 437	2			2		CHEM 232

Department Core Prerequisites

	Courses Title	Course Code	Contact Hours			Credit	%	Prerequisites
			Theoretical	Practical	Training			
1	General Chemistry (1)	CHEM 201	3		3	4		CHEM 201
2	Fundamentals of Organic Chemistry (1)	CHEM 231	3		3	4		CHEM 201
3	General Chemistry (2)	CHEM 202	3		3	4		CHEM 231
4	Volumetric and Gravimetric Chemical Analysis	CHEM 211	3		3	4		CHEM 202 MATH205
5	Fundamentals of Organic Chemistry (2)	CHEM 232	3		3	4		CHEM 202
6	Chemical Thermodynamics	CHEM 341	3			3		CHEM 202
7	Electrochemistry (1)	CHEM 342	2			2		CHEM 202
8	Inorganic Chemistry (1)	CHEM 321	2			2		CHEM 232
9	Chemical Kinetics	CHEM 346	2			2		CHEM 211
10	Heterocyclic Compounds	CHEM 331				2		CHEM 341
11	Methods of Instrumental Analysis	CHEM 311	3		3	4		CHEM 342
12	Quantum Chemistry	CHEM 347	3		3	3		CHEM 321
13	Electrochemistry (2)	CHEM 348	2			2		CHEM 311
14	Inorganic Chemistry (2)	CHEM 322	3			3		CHEM 341
15	Methods of Chromatographic Separation	CHEM 314	2		1	3		Passing Level 6
16	Practical Physical Chemistry	CHEM 343			6	2		CHEM 331
17	Site Training	CHEM 390			6	2		CHEM 322
18	Organic Reaction Mechanism	CHEM 431	2			2		CHEM 341
19	Inorganic Reaction Mechanism	CHEM 421	2			2		CHEM 348
20	Nuclear Chemistry and Radiochemistry	CHEM 443	2			2		CHEM 341
21	Corrosion of Metals and Controlling the Corrosion Phenomenon	CHEM 441	2			2		CHEM 431
22	Surface Chemistry, Catalysis and Colloids	CHEM 442	3			3		CHEM 421
23	Spectroscopy of Organic Compounds	CHEM 433	2		3	3		CHEM 421
24	Spectroscopy of Inorganic Compounds	CHEM 422	2		3	3		Registration in Level 8
25	Practical Inorganic Chemistry	CHEM 423	0		9	3		
26	Research Project	CHEM 490	2			2		
Total			**59**		**42**	**72**		

Study Plan Courses & Levels

1st Level — **Preparatory Year**

	Courses Title	Course Code	Contact Hours			Credit	%	Prerequisites
			Theoretical	practical	Training			
1	Mathematics (1)	MATH 100	3			3		
2	English (1)	ELS 001	15			5		
3	General Chemistry	CHEM 101	3			3		
4	General Biology	BIO 101	3			3		
5	Learning, Thinking and Research Skills	LTS 001	4			3		
Total						17		

2nd Level — **Preparatory Year**

	Courses Title	Course Code	Contact Hours			Credit	%	Prerequisites
			Theoretical	practical	Training			
1	General physics	PHYS 101	3			3		
2	Mathematics (2)	MATH 101	3			3		MATH 100
3	English (2)	ELS 002	15			5		ELS 001
4	Computer skills	CSC 001	4			3		
5	Communications skills	COMM 001	2			2		
Total						16		

3rd Level — **Second Year**

	Courses Title	Course Code	Contact Hours			Credit	%	Prerequisites
			Theoretical	practical	Training			
1	General Chemistry (1)	CHEM 201	3	3		4		
2	Fundamentals of Organic Chemistry (1)	CHEM 231	3	3		4		
3	Fundamentals of Integral Calculus	MATH 200	4			4		MATH 101
4	Language Skills	ARAB 101	2			2		
5	Islamic Culture (1)	ISLS 101	2			2		
Total						16		

4th Level — **Second Year**

	Courses Title	Course Code	Contact Hours			Credit	%	Prerequisites
			Theoretical	practical	Training			
1	General Chemistry (2)	CHEM 202	3	3		4		CHEM 201
2	Volumetric and Gravimetric Chemical Analysis	CHEM 211	3	3		4		CHEM 201
3	Fundamentals of Organic Chemistry (2)	CHEM 232	3	3		4		CHEM 231
4	Introduction to Differential Equations	MATH 205	2			2		MATH 200
5	Islamic Culture (2)	ISLS 201	2			2		ISLS 101
6	Writing Skills	ARAB 201	2			2		ARAB 101
Total						18		

5th Level **Third Year**

	Courses Title	Course Code	Contact Hours			Credit	%	Prerequisites
			Theoretical	practical	Training			
1	Chemical Thermodynamics	CHEM 341	3			3		CHEM 202 MATH 205
2	Electrochemistry (1)	CHEM 342	2			2		CHEM 202
3	Chemical Kinetics	CHEM 346	2			2		CHEM 202
4	Methods of Instrumental Analysis	CHEM 311	3	3		4		CHEM 211
5	Inorganic Chemistry (1)	CHEM 321	2			2		CHEM 202
6	Chemistry of Heterocyclic Compounds	CHEM 331	2			2		CHEM 232
7	General Statistics	SATA 201	2			2		MATH 101
	Islamic culture (3)	ISLS 301	2			2		ISLS 201
Total						19		

6th Level **Third Year**

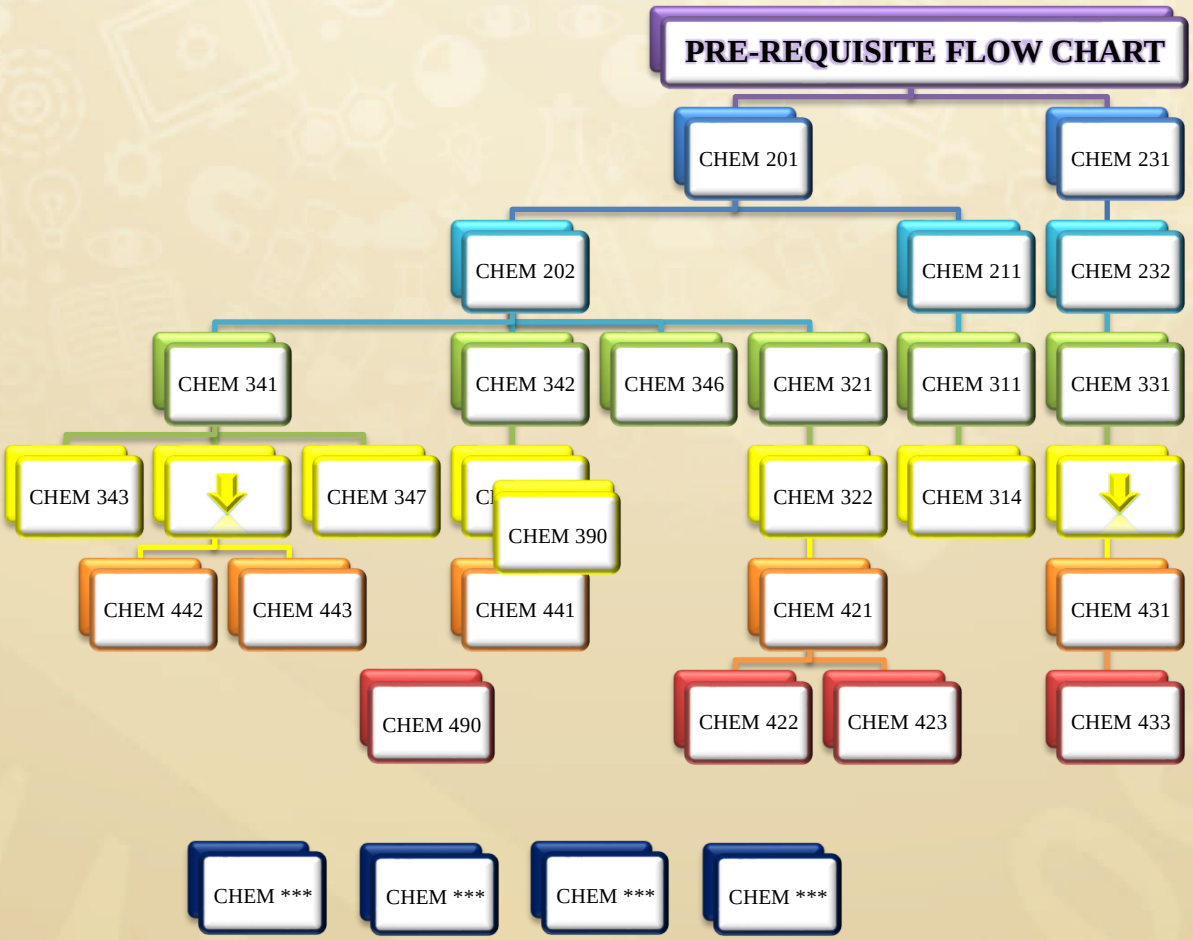
	Courses Title	Course Code	Contact Hours			Credit	%	Prerequisites
			Theoretical	practical	Training			
1	Quantum Chemistry	CHEM 347	3			3		CHEM 341
2	Electrochemistry (2)	CHEM 348	2			2		CHEM 342
3	Practical Physical Chemistry	CHEM 343		6		2		CHEM 341
4	Methods of Chromatographic separation	CHEM 314	2	3		3		CHEM 311
5	Inorganic Chemistry (2)	CHEM 322	3			3		CHEM 321
6	Elective course in Chemistry	CHEM xxx				2		
7	Site training	CHEM 390	2			2		Passing Level 6
8	Islamic culture (4)	ISLS 401	2			2		ISLS 301
Total						19		

7th Level **Fourth Year**

	Courses Title	Course Code	Contact Hours			Credit	%	Prerequisites
			Theoretical	practical	Training			
1	Organic Reaction Mechanisms	CHEM 431	2			2		CHEM 331
2	Inorganic Reaction Mechanisms	CHEM 421	2			2		CHEM 322
3	Corrosion of metals and controlling the corrosion phenomenon	CHEM 441	2			2		CHEM 348
4	Surface Chemistry, Catalysis and Colloids	CHEM 442	3			3		CHEM 341
5	Nuclear Chemistry and Radiochemistry	CHEM 443	2			2		CHEM 341
6	Elective Course in Chemistry	CHEM xxx	2			2		
Total						13		

8th Level **Fourth Year**

	Courses Title	Course Code	Contact Hours			Credit	%	Prerequisites
			Theoretical	practical	Training			
1	Spectroscopy of Organic Compounds	CHEM 433	2	3		3		CHEM 431
2	Spectroscopy of Inorganic Compounds	CHEM 422	2	3		3		CHEM 421
3	Practical Inorganic Chemistry	CHEM 423		9		3		CHEM 421
4	Research Project	CHEM 490	2			2		Registration in Level 8
5	Elective Course in Chemistry	CHEM xxx	2			2		
6	Elective Course in Chemistry	CHEM xxx	2			2		
Total						15		


PRE-REQUISITE FLOW CHART
CHEM 201
CHEM 231
CHEM 202
CHEM 211
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CHEM 341
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CHEM 343
CHEM 347
CHEM 322
CHEM 314
S5
CHEM 390
CHEM 442
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Elective

Brief of Regulation for Academic Study and Examination of undergraduate Programs

Article one: Definitions

1.1 Academic year:

The main two semesters and summer semester if any

1.2 Academic semester:

Each academic course is of duration not less than fifteen weeks, including the time of registration and final examination

1.3 Academic study level

It is indicative of Academic study stage. The number of Academic study levels required for graduation is eight or more levels in accordance with the Academic Plans approved.

1.4 **Course**

An academic subject follows a specific academic level within the academic plan approved in each specialization (program). Each course has a code, a number, a name and detailed description of its contents different from other courses content. Special file for each course should be maintained by the department, that for the purpose of monitoring, evaluation and development. Some courses may require one or more pre-requisites, which may studied simultaneously.

1.5 A unit of study:

It is a weekly theoretical lecture given with a duration fifty-minutes.

Academic warning: it is a direct notice to students whose cumulative GPA is below minimum pass (2 of 5) as described in this directory.

1.6 Semester assignments degree

It is a grade given the student to clarify his performance generated from test, research and activities that related to study courses during one semester.

1.7 The final exam:

It is course exam, which held once at the end of each semester.

1.8 The final exam degree:

It is a degree given to the student for each course at final exam.

1.9 The final degree:

It is the sum of Semester assignments degree and the final exam degree. It calculated of 100%

1.10 Grade:

It is description of the percentage or the letter code of the final degree assigned to student's final degree in any courses.

1.11 Incomplete Grade (IC):

It a temporary grade assigned to any course that the student does not complete its requirement, and usually have the code (IC).

1.12 In-Progress Grade:

It a temporary grade assigned to any course, which needs more than one semester to completed its requirement, and usually have the code (IP).

1.13 Semester Grade Point Average (SGPA):

It is the sum of all course point acquired by the students at the end of a semester divide by the sum of planned credited hours assigned to all courses. The pints equal the courses credit hour times the grade weight (loot at how to calculate the semester (GPA) at the end of this document)

1.14 Cumulative Grade Point Average (CGPA).

It is the sum of all semester courses point acquired by the students at the end of the year divided by the sum of planned credited hours assigned to all courses. (look at how to calculate the cumulative (GPA) for the year at end of this document).

Academic Levels and studying system.

- The duration of study at faculty of science is eight levels and each level is equivalent to one semester.
- The Students shift from one level to other level, if they pass all prescribed courses of that level.
- The students minimum study workload is (12) units of study or the remaining units required of completion for graduation even if it is less than the workload. The maximum study workload is (24) units of study if the students expected to complete the graduation.
- The students' cumulative grade point average (GPA) determine the maximum students study workload for units of study.
- Students can be on automatically registered students before the start of the semester. Students enabled to delete and add courses according to the guidelines set by deanship of Admission and Registration.

1.15 Attendance and withdrawal

Regular students should compulsory attend all course lectures and practical studies. The student will be prohibiting for entering the final exam for any course during the first semester or the second semester, if his attendance is less than (75%) and he will be assigned the grade (F) (Failure) or denial (DN).

The student has the right to withdraw from not to continue studying. In either the first or the second semester before at least three weeks of the start the final exams for each first or second semester, if and only if he can show an acceptable apology to the Faculty of Science Dean. The withdrawing from continuous study must not exceed two consecutive semesters or three non-consecutive semesters. The student has a right to withdraw from one or more courses according to the following:

- The Faculty of science Approval.
- Must apply to withdraw from any course before fixed date for withdrawal time (apologize)
- The students in his final result will be assigned (w) for the course that he withdraws

Postponement and drop out of studying:

- Students may apply for study postponement before the end of the first starting week of studying courses for an excuse acceptable to the dean of the Faculty of science.
- If regular student dropout of his studies for four weeks from the beginning of the semester without requesting postponement, the Faculty Has a right to fold his registration.
- The Student will not considered as drop out from his studies, if and only if, he is studying some courses as a visit or at another university.

Student's Re-enrollment

Student with pleated enrollment (Folding registration), Can apply for the Faculty to re-enroll him with the same identity number and registration number according to the following:

- Students may apply for re-enrollment (Re-entry) during four semesters (or two years) starting from the date of pleated enrollment (collapse).
- The Faculty of science Board approval and agreement on the student re-enrollment.
- If the students pleated enrolment past more than four semesters, he can apply for faculty of science to admit him as new students, without reference to the previous registration and to follow all the requirements stared at the time of admission.
- The students will not be allowed re-enrolling more than once.
- The students will not be allowed re-enrolling if he dismissed from the faculty of science.

Graduation:

Students will graduate from the faculty of science after having successfully completed the prescribed courses (study plan) with not less than cumulative GPA (2 OF 5)

Dismissing From the university

Firstly: Students will not be dismissed of university, if one of the following cases occurred:

1. If the students receive, at most three consecutive warnings due to GPA less than the minimum pass (2:00).
2. If the students did not finish graduations' requirements within a maximum of half time Scheduled for graduation, in addition to duration of the program (4 years).

Graduation and Degrees of honor (Grading System)

Grade Limit	Grade	Grade Code	Grade Weight
95 -100	Exceptional	A+	5
90 to less than 95	Excellent	A	4.75
85 to less than 90	Superior	B+	4.5
80 to less than 85	Very Good	B	4
75 to less than 80	Above Average	C	3.5
70 to less than 75	Good	C+	3.
65 to less than 70	High Pass	D+	2.5
60 to less than 65	Pass	D	2.0
less than 60	Fail	F	1
----------	In - Progress	IP	----

1- Grade and degrees of honor obtained by the student in each course is calculated as follows:

2- The cumulative grade point average (GPA) awarded to graduated student is as follows.

- Excellent: if the cumulative GPA of at least 4.5.
- Very Good: If the cumulative GPA of 3.75 to less than 4.5.
- Good: If the cumulative GPA of 2.75 to less than 3.75.
- Pass: If the cumulative GPA of 2.00 to less than 2.75

3- A student who graduated with accumulative grade point average (GPA) of (4.5) to (5) will be awarded First Class Honors Degree, and the one who graduated with accumulative grade point average (GPA) of (4.25) to less (4.75) will be awarded Second Class Honors Degree.

The conditions required for awarding First Class Honors Degree or Second-Class Honors Degree is as follows:

- The student must not fail in any course taught to him at his university of graduation or any other university.
- The student must have completed graduation requirements at a maximum average duration (between minimum and maximum stay in Faculty)

- The student must have studied at University of Tabuk at least 60% of graduation requirements.

How to calculate the Semester (GPA) and average (GPA) for the year Example:

First semester

Course	Credit Hours	%	Grade	Grade Weight	points
Course 1	2	85	A+	4.5	9.00
Course 2	3	70	C	3	9.00
Course 3	3	92	A	4.75	14.25
Course 4	4	80	B	4	16
	12				48.25

$$\text{GPA for Semester} = \frac{48.25}{12} = 4.02$$

Course	Credit Hours	%	Grade	Grade Weight	points
Course 1	2	96	A+	5	10.00
Course 2	3	83	B	4	12.00
Course 3	3	71	C	3	9.00
Course 4	4	81	B	4	12.00
	12				43

$$\text{GPA for Semester} = \frac{43}{12} = 3.58$$

$$\text{Arerage GPA for the year} = \frac{48.25 + 43}{12 + 12} = 3.80$$

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