Academic Program Specification Form For The Academic Year 2020-2021

University: Al-Kitab
College : Technical college of Engineering
Number Of Departments In The College : 3
Date Of Form Completion : 5/9/2021

Dean's Name

Date : / / 2022

Signature

Dean's Assistant For Scientific Affairs

Date : / / 2022

The College Quality Assurance And University Performance Manager

Date : / / 2022

Signature

Quality Assurance And University Performance Manager
Date : / / 2022
Signature

TEMPLATE FOR PROGRAMME SPECIFICATION

PROGRAMME SPECIFICATION

This Programme Specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It is supported by a specification for each course that contributes to the programme.

1. Teaching Institution	Al-Kitab University
2. University Department/Centre	Aeronautical Technical Engineering
3. Programme Title	Accreditation Board for Engineering and Technology
4. Title of Final Award	Bachelor of Aeronautical Engineering Techniques
5. Modes of Attendance offered	Annual
6. Accreditation	Accreditation Board for Engineering and Technology
7. Other external influences	There is a strong relationship with the labor market, which is willing to hire graduates.
8. Date of production/revision of this specification	1/3/2022

9. Aims of the Program

- Graduating cadres of technical engineers with a high level of understanding, knowledge and psychological qualification, in the field of aeronautical engineering. Lays on them the responsibility of studying the country needs in developing the aeronautical field. Those cadres capable of providing the needsof business market in the civil and military airports.
- preparing en educated generation armed with science to be used to make a dramatically changes and put the scientific knowledge and scientific manner inthinking and analyzing for serving the country goals with the ability of continuing his higher education and adapting with the technical evolving in

order to convey the human needs expansion.

- develop a generation of technical engineers and prepare a future scientific leaders in aeronautical technical engineering and work on strengthen the status of al-Kitab university in general and the aeronautical technical engineering department specially

- Focusing on students to ensure building them on a strong foundations of scientific knowledge specially in aeronautical field and strive to support them in all aspects to make them capable of solving problems, and possess a communication skills which is necessary to work in airplanes field and present a high quality services for community. that what the department and college seek for community and that is the fundamental matter of sustainable development through guidance to choose the best means to expand their activity and reinforce their professional and scientific specialties.

- balance in concentration on the theoretical and applied principles of aeronautical technical engineering , and work on providing the students with tools and analytical, experimental , computer and methodological means to identify and solve the engineering problems, and focus on enter modern methods in learning systems which increase the students ability on designing, creativity and invention. provide the self -taught and continuing education and spread the engineering knowledge in aeronautical field through short courses , workshops , seminars ,and conferences with provide consulting and lectures.

- provide academic environment suitable for study and search to contribute in finding solutions for engineering problems using appropriate techniques as well as active contribution in deepen and ensuring the department relation with community through training and develop the teaching and administrative staff.

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10. Learning Outcomes, Teaching, Learning and Assessment Methods

A. Knowledge and Understanding
A1. The aeronautical technical engineering graduated will possess the ability of critical thinking, solving problems, manage resources and time, and describe the airplanes specialty with its concepts in engineering and scientific methods.
A2.The ability to engineering analyzes and scientific thinking by implementing the laws in science, mathematics and engineering with committing by guides and special instructions of maintenance workshops in airports or by facing engineering problem with the ability of resolve , assess it and propose a suggestion or plan or reformulate or translate and explain it.
A3. Enable student to talk and speak in engineering scientific effected manner in both Arabic and English languages.

A4. hold on ethics of profession with the ability to Demonstrate the professional competence and high precision in addition to commitment in personal appearance and behavior

A5..knowing the international standers and syllabus of aeronautical engineering and implement the quality management concepts in engineering work acquired the skills in information technology

A6..being interested in environmental protection from contamination.

B. Subject-specific skills

B1. The ability to implement the technique of aeronautical engineering with consideration of commercial and industrial restrictions.

B2. Analyze the engineering problems and resolve them with the ability to suggest appropriate alternatives

B3. Scientific survey and correction

B4. Effective Engineering discussions.

Teaching and Learning Methods

- Theoretical and practical lectures.
- Homework and extra-curricular activities.
- Research and reports.

Assessment methods

- Daily Sudden Exams
- Semester exams
- Mid-year and end-of-year exams
- Additional assessments of extra-curricular activities

C. Thinking Skills

C1. Present the engineering problem or design and request thinking for solutions or possible developments.

C2.Encourage improving the engineering thinking of students in memorizing and guessing and stimulate it to criticize thinking.

C3.Develope internet searching skills to expand the cognitive knowledge.

C4. Use brainstorming in drawing the creative thoughts for some distinct students.

Teaching and Learning Methods

- Ongoing guidance from the department's professors in general, as well as the department's and college's educational and psychological guidance committees.
- Ongoing conversations with students.
- Continuous communication with students through the department's page on social networking sites;

Assessment methods

- Consistent interviews with students, as well as listening to the most important problems and obstacles that students face in order to avoid them.
- Creating customized questionnaires for this purpose.
- Constant monitoring of students and an attempt to assess those who are sluggish.

D. General and Transferable Skills (other skills relevant to employability and personal development)
D1. The ability to work in a multidisciplinary team.
D2. The ability to communicate and communicate effectively and efficiently.
D3. Understand the impact of engineering solutions on economic and environmental activities and the societal context.
D4. The ability to use modern engineering techniques and skills and tools necessary to practice the engineering profession.

Teaching and Learning Methods

- Groups for graduation project preparation.
- Additional courses in the area of specialization.
- Courses in Information Technology and Networking (IT & Cisco).
- Summer training within companies with a competence close to the nature of the program.

Assessment Methods

Taking online assessment exams for courses in communications systems, information technology and networks, preparing scientific reports and conducting scientific discussions.

11. Programme Structure				12. Awards and Credits
Level/Year	Course or Module Code	Course or Module Title	Credit rating	
Year 1	CREQ141	Electrical Engineering	5	Bachelor Degree Requires (x) credits
Year 1	CREQ142	Eng. Drawing &Descriptive	4	

Year 1	UREQ 161	Human Right & Democracy	4	
Year 1	MATH 151	Mathematics I	6	
Year 1	ANTE112	Mechanics I	6	
Year 1	ANTE 111	Properties of Materials	4	
Year 1	ANTE121	Thermodynamics	6	
Year 1	CREQ143	Programming I	4	
Year 1	CREQ 144	Work Shop	4	

Year 2	ANTE 223	Fluid Mechanics	6	Bachelor Degree Requires (x) credits
Year 2	ANTE215	Manufacturing Processes	5	
Year 2	CREQ 246	Mechanical Drawing	4	
Year 2	MATH 252	Mathematics II	6	
Year 2	ANTE 213	Mechanics II	6	
Year 2	ANTE 214	Strength of Material	6	
Year 2	ANTE 231	Theory of Flight	4	
Year 2	ANTE 222	Thermodynamics	6	
Year 2	CREQ 245	Programming	4	

Year 3	ANTE 324	Aerodynamics	6	Bachelor Degree Requires (x) credits
Year 3	ANTE 332	Aircraft Elec. and instrument	6	
Year 3	ANTE 316	Mech. Eng. Design I	6	
Year 3	CREQ 347	Eng. & Num. Analysis	4	
Year 3	ANTE 325	Heat Transfer	6	

Year 3	CREQ348	Industrial Engineering	4	
Year 3	ANTE 317	Theory of Machines	6	
Year 3	ANTE326	Aircraft Engines	6	
Year 3	ANTE 326	Gas Dynamics	5	

Year 4	ANTE 436	Aircraft Design	7	Bachelor Degree Requires (x) credits
Year 4	ANTE 435	Aircraft Engines &Propulsion	5	
Year 4	ANTE 438	Aircraft Stability & Control	5	
Year 4	ANTE 434	Aircraft Structures	5	
Year 4	ANTE 439	Aircraft &Maintenance	6	
Year 4	CREQ 449	Computer Aided Engineering	2	
Year 4	CREQ 418	Automatic Control	5	
Year 4	ANTE37	Aircraft Vibration	6	
Year 4	CREQ 4410	Final project	3	

13. Personal Development Planning

Striving to develop curricula and study programs and vaccinate them with all that is modern to keep pace with the rapid development within the field of specialization.

14. Admission criteria.

The admission criteria in the college are linked to the regulations of the Ministry ofHigher Education and Scientific Research, since admission is central.

15. Key sources of information about the programme
Technical University, since the curricula are unified for this specialization in all Iraqi colleges and universities and international universities related to the specialization.

Curriculum Skills Map

please tick in the relevant boxes where individual Programme Learning Outcomes are being assessed

Year / Level	Course Code	Course Title	Core (C) Title or Option (O)	Knowledge and understanding				Subject-specific skills				Thinking Skills				General and Transferable Skills (or) Other skills relevant to employability and personal development			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4
Year 1	CREQ141	Electrical Engineering	Core	•													•	•	
	CREQ142	Eng. Drawing &Descriptive	Core	•	•														
	UREQ 161	Human Right & Democracy	Core	•	•	•		•				•	•	•	•		•	•	
	MATH 151	Mathematics I	Core	•	•	•		•				•	•	•	•		•	•	
	ANTE112	Mechanics I	Core	•	•	•		•				•	•	•	•		•	•	
	ANTE 111	Properties of Materials	Core	•								•	•	•	•		•		
	ANTE121	Thermodynamics	Core					•		•	•						•	•	•
	CREQ143	Programming I	Core	•			•										•		
	CREQ 144	workshop	core				•	•			•						•		

Year	Code	Course	Type																
Year 2	ANTE 324	Aerodynamics	Core	•	•	•		•		•			•	•	•	•		•	•
	ANTE 332	Aircraft Elec. and instrument	Core	•	•	•		•					•	•	•	•		•	•
	ANTE 316	Mech. Eng. Design I	Core	•									•	•	•	•		•	•
	CREQ 347	Eng. & Num. Analysis	Core	•									•	•	•	•		•	•
	ANTE 325	Heat Transfer	Core	•									•	•	•			•	
	CREQ348	Industrial Engineering	Core	•				•										•	•
	ANTE 317	Theory of Machines	Core	•	•	•							•	•	•	•		•	•
	ANTE326	Aircraft Engines	Core					•		•	•							•	•	•
	ANTE 326	Gas Dynamics	Core				•	•			•					•	•	
Year 3	ANTE 324	Aerodynamics	Core	•	•	•		•		•			•	•	•	•		•	•
	ANTE 332	Aircraft Elec. and instrument	Core	•	•								•	•	•	•		•	
	ANTE 316	Mech. Eng. Design I	Core	•	•	•		•		•			•	•	•	•		•	
	CREQ 347	Eng. & Num. Analysis	Core	•	•								•	•	•	•		•	•

Year	Code	Course	Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	ANTE 325	Heat Transfer	Core	●	●	●		●			●		●	●	●	●		●		●	●
	CREQ348	Industrial Engineering	Core		●				●										●	●	●
	ANTE 317	Theory of Machines	Core	●									●	●	●	●		●			●
	ANTE326	Aircraft Engines	Core					●			●	●		●	●						
	ANTE 326	Gas Dynamics	Core	●	●	●		●			●		●	●	●	●		●			
Year 4	ANTE 436	Aircraft Design	Core	●	●								●	●	●	●		●			
	ANTE 435	Aircraft Engines &Propulsion	Core	●	●	●		●			●		●	●	●	●	●	●		●	●
	ANTE 438	Aircraft Stability & Control	Core	●	●	●		●			●		●	●	●	●		●			
	ANTE 434	Aircraft Structures	Core		●					●									●	●	●
	ANTE 439	Aircraft &Maintenance	Core	●				●			●		●	●	●	●		●		●	
	CREQ 449	Computer Aided Engineering	Core					●			●	●						●		●	●
	CREQ 418	Automatic Control	Core	●		●	●							●	●			●		●	
	ANTE37	Aircraft Vibration	Core	●	●	●				●	●			●	●		●	●			

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Collage of technical engineering technical Engineering Department
2. University Department/Centre	Aeronautical Technical Engineering
3. Course title/code & Description	Engineering Mechanics/ME102 This course introduces the description of Newton's, laws. Topics covered: Equilibrium of particles and rigid body in two dimensions and three dimension, study equilibrium of some practical structures such as truss, frame and machines also study friction force and some its application as in screw and belts. While in dynamic analyses the kinematics and kinetics of particles in 2and 3 dimensions and rigid body in two

	dimension . The course is designed to provide a background to higher level courses involving forces , stress analysis and dynamic. The course is taught through 5 hrs per week, 4theories and 1 tutorial.
4. _Programme(s) to which it Contributes_	B.Sc. in Aeronautical Technical Engineering
5. _Modes of Attendance offered_	Annual System ; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects. mode.
6. _Semester/Year_	1st & 2nd / Academic
7. _Number of hours tuition (total)_	150 hrs. / 5 hrs. per week
8. _Date of production/revision of this specification_	1/3/2022

9. _Aims of the Course_

1- Introduce basic definitions and introductory concepts of statics and dynamics.
2- give a review to vectors analyses
3- give the principles of force system in 2and 3 dimensions and kinematics of particles and rigid body in two and three dimensions .
4- explain Newton laws for equilibrium of particles and rigid body in two and three dimensions and kinetics of particles in two and three dimensions and rigid body in two dimensions .

mechanics. The student will have a base that make him capable to study and deal with more advance subjects that concerns engineering structures design under different load conditions.

10· Learning Outcomes

1. Understand the methods for calculating force system.
2. Analyze body and structures equilibrium.
3. Analyze and understand the procedures to calculate the center and center of gravity of a body and second moment of area and mass.
4. Understand the methods for investigation kinematics of particles and rigid body.
5. Understand the methods for investigation kinetics of particles and rigid body.
6. Be able to apply modern knowledge and to apply mathematics ,science, engineering and technology to engineering mechanics problems and applications.
7. Work in groups and function on multi-disciplinary teams.
8. Identify, formulate and solve engineering mechanics problems.

9. Understand professional, social and ethical responsibilities.
10. Communicate effectively.

11. Teaching and Learning Methods

1. Lectures.
2. Tutorials.
3. Homework and Assignments.
4. Tests and Exams.
6. In-Class Questions and Discussions.
7. Connection between Theory and Application.
8. In- and Out-Class oral conservations.

12. Assessment Methods :

1. Examinations, Tests, and Quizzes.
2. Student Engagement during Lectures.
3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

13. Grading Policy

1. Quizzes:
- There will be a (20 – 25)closed books and notes quizzes during the academic semester. The quizzes will count 30% of the total course grade.
2. Final Exam:
- The final exam will be comprehensive, closed books and

11. Understand the methods for calculating force system.
12. Analyze body and structures equilibrium.
13. Analyze and understand the procedures to calculate the center and center of gravity of a body and second moment of area and mass.
14. Understand the methods for investigation kinematics of particles and rigid body.
15. Understand the methods for investigation kinetics of particles and rigid body.
16. Be able to apply modern knowledge and to apply mathematics ,science, engineering and technology to engineering mechanics problems and applications.
17. Work in groups and function on multi-disciplinary teams.
18. Identify, formulate and solve engineering mechanics problems.

19. Understand professional, social and ethical responsibilities.
20. Communicate effectively.

11. Teaching and Learning Methods

5. Lectures.
6. Tutorials.
7. Homework and Assignments.
8. Tests and Exams.
9. In-Class Questions and Discussions.
10.   Connection between Theory and Application.
11.   In- and Out-Class oral conservations.

12. Assessment Methods :

4. Examinations, Tests, and Quizzes.
5. Student Engagement during Lectures.
6. Responses Obtained from Students, Questionnaire about
Curriculum and Faculty Member (Instructor).

13. Grading Policy

1.   Quizzes:
- There will be a (20 – 25)closed books and notes quizzes during the academic semester. The quizzes will count 30% of the total course grade.
 2.   Final Exam:
- The final exam will be comprehensive, closed books and
notes, and will take place on January 2018 from 9:00 AM - 12:00 PM

4. Course Structure

Week	Hour sper week	LOs (Article 10)	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	5 2stat. 2dyn .1tut.	1,4,5,6, 7,8,9,10	**Vectors analysis & international system of units** Dynamics of particles, introduction	1-8 of article 11	1-3 of article 12
2	5 2stat. 2dyn .1tut.	1,4,5,6, 7,8,9,10	**Force system in two dimensions** Dynamics of particles, introduction	1-8 of article 11	1-3 of article 12
3	5 2stat. 2dyn .1tut.	1,6,7,8, 9,10	**Force system in two dimensions** Kinematics of particles, rectilinearmotion	1-8 of article 11	1-3 of article 12
4	5 2stat. 2dyn .1tut.	1,4,5,6, 7,8,9,10	**Force system in three dimensions** Kinematics of particles, rectilinear motion	1-8 of article 11	1-3 of article 12
5	5 2stat. 2dyn .1tut.	1,4,5,6, 7,8,9,10	**Exam+Force resultants in three dimensions** Kinematics of particles, curvilinear motion, normal and tangential coordinates	1-8 of article 11	1-3 of article 12
6	5 2stat. 2dyn .1tut.	1,4,5,6, 7,8,9,10	**Moment system resultants in three dimensions** Kinematics of particles, curvilinear motion, normal and tangential coordinates	1-8 of article 11	1-3 of article 12
7	5 2stat. 2dyn. 1tut.	1,4,5,6, 7,8,9,10	**Exam+Force system resultants in three dimensions** Kinematics of particles polar coordinates (r-Ө)	1-8 of article 11	1-3 of article 12
8	5 2stat. 2dyn. 1tut.	1,4,5,2, 6,7,8,9, 10	**Equilibrium of particles -2Dim.** Kinematics of particles polar coordinates (r-Ө)	1-8 of article 11	1-3 of article 12
9	5 2stat. 2dyn . 1tut.	1,4,5,2, 6,7,8,9, 10	**Equilibrium of particles -2Dim.** Dependent Motion and Relative Motion	1-8 of article 11	1-3 of article 12

01	5 2stat. 2dyn. 1tut.	1,4,5,2, 6,7,8,9, 10	**Exam+Equilibrium of particles-3Dim.** Dependent Motion and Relative Motion	1-8 of article 11	1-3 of article 12
00	5 2stat. 2dyn. 1tut.	1,2,4,5, 6,7,8,9, 10	**Equilibrium of particles-3Dim.** Work and Kinetics energy, Potentialenergy	1-8 of article 11	1-3 of article 12
02	5 2stat. 2dyn. 1tut.	1,2,4,5, 6,7,8,9, 10	**Equilibrium of rigid body- 2Dim.** Work and Kinetics energy, Potentialenergy	1-8 of article 11	1-3 of article 12
03	5 2stat. 2dyn. 1tut.	1,2,4,5, 6,7,8,9, 10	**Equilibrium of particles -2Dim.** Kinetics of particles, Force, mass, andacceleration	1-8 of article 11	1-3 of article 12
04	5 2stat. 2dyn. 1tut.	1,2,4,5, 6,7,8,9, 10	**Exam+Equilibrium of particles- 3Dim.**Kinetics of particles, Force, mass, and acceleration	1-8 of article 11	1-3 of article 12
05	5 2stat. 2dyn. 1tut.	1,2,4,5, 6,7,8,9, 10	**Equilibrium of rigid body-3Dim.** Plane kinematics of rigid bodies, rotation	1-8 of article 11	1-3 of article 12
06	5 2stat. 2dyn. 1tut.	1,2,4,5, 6,7,8,9, 10	**Equilibrium of rigid body-3Dim.** Plane kinematics of rigid bodies, rotation	1-8 of article 11	1-3 of article 12
07	5 2stat. 2dyn. 1tut.	1,3,4,5, 6,7,8,9, 10	**Exam+Center of gravity and Centroid** Plane kinematics of rigid bodies, absolute motion	1-8 of article 11	1-3 of article 12
08	5 2stat. 2dyn. 1tut.	1,3,4,5, 6,7,8,9, 10	**Center of gravity and Centroid** Plane kinematics of rigid bodies, absolute motion	1-8 of article 11	1-3 of article 12
09	5 2stat. 2dyn. 1tut.	1,3,4,5, 6,7,8,9, 10	**Center of gravity and Centroid** Relative velocity, Instantaneous center of zero velocity	1-8 of article 11	1-3 of article 12
21	5	1,4,5,6,	**Exam+Moment of Inertia of area** Relative velocity, Instantaneous center of	1-8 of	1-3 of

	2stat. 2dyn. 1tut.	7,8,9,10	zero velocity	article 11	article 12
20	5 2stat. 2dyn .1tut.	1,3,4,5, 6,7,8,9, 10	**Moment of Inertia of area** Relative acceleration, Motion relative to rotating axes	1-8 of article 11	1-3 of article 12
22	5 2stat. 2dyn .1tut.	1,3,4,5, 6,7,8,9, 10	**Moment of Inertia of area** Relative acceleration, Motion relative to rotating axes	1-8 of article 11	1-3 of article 12
23	5 2stat. 2dyn .1tut.	1,3,4,5, 6,7,8,9, 10	**Exam+Moment of Inertia of Mass** Work and energy, Virtual work	1-8 of article 11	1-3 of article 12
24	5 2stat. 2dyn .1tut.	1,3,4,5, 6,7,8,9, 10	**Moment of Inertia of Mass** Work and energy, Virtual work	1-8 of article 11	1-3 of article 12
25	5 2stat. 2dyn .1tut.	1,3,4,5, 6,7,8,9, 10	**Moment of Inertia of Mass** Impulse an momentum equations	1-8 of article 11	1-3 of article 12
26	5 2stat. 2dyn .1tut.	1,2,4,5, 6,7,8,9, 10	**Exam+Truss analysis-2Dim.** Impulse an momentum equations	1-8 of article 11	1-3 of article 12
27	5 2stat. 2dyn .1tut.	1,2,4,5, 6,7,8,9, 10	**Truss analysis-2Dim.** Plane kinetics of rigid bodies, Translation, Fixed- axes rotation, General plane motion	1-8 of article 11	1-3 of article 12
28	5 2stat. 2dyn. 1tut.	1,2,4,5, 6,7,8,9, 10	**Truss analysis-2Dim.** Plane kinetics of rigid bodies, Translation, Fixed- axes rotation, General plane motion	1-8 of article 11	1-3 of article 12

| 29 | 5
2stat.
2dyn.
1tut. | 1,2,4,5,
6,7,8,9,
10 | **Exam+Friction analysis**
Plane kinetics of rigid bodies,
Translation, Fixed- axes rotation,
General plane motion | 1-8 of
article 11 | 1-3 of
article 12 |
| 31 | 5
2stat. | 1,2,4,5,
6,7,8,9, | **Friction analysis**
Plane kinetics of rigid bodies,
Translation, Fixed- axes rotation, | 1-8 of
article 11 | 1-3 of
article 12 |

15. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	*References* 6. Advanced Engineering Mathematics , by Erwin Kreyszig ,Tenth Edition, 2011. 7. Advanced Modern Engineering Mathematics, by Glyn James, Fourth Edition, 2011. 8. "Numerical Methods For Engineers"; by Steven C. Chapra, and Raymond P. Canale, McGraw-Hill, Sixth Edition, 2010. 9. "Numerical Analysis"; by G. Shanker Rao, New Age International Ltd., Third Edition, 2006. 10. "Numerical Analysis"; by Richard L. Burden, and J. Douglas Faires, Cengage Learning, Ninth Edition, 2011. *Others:* Collection of sheets of solved and unsolved problems and Exams questions
	• Available websites related to the subject.