

*Republic of Iraq
Ministry of Higher Education & Scientific Research
Supervision and Scientific Evaluation Directorate
Quality Assurance and Academic Accreditation
International Accreditation Dept.*

*Academic Program Specification Form for The
Academic Year 2019-2020*

*University: Northern Technical University
Institute: AL Dour technical Institute
Department: Mechanical techniques
Date Of Form Completion: 26/05/2021*

Dean 's Name:

Assistant prof. Mudher A.AHMED

Date: / /2021

Signature

Dean 's Assistant for Scientific Affairs:

Assistant prof. Maha A.Jasim

Date: / /2021

Signature

Quality Assurance and University Performance Manager:

Sanaa.J.Mohammed

Date: / /2021

Signature

TEMPLATE FOR PROGRAM SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAM REVIEW

PROGRAM SPECIFICATION

This Programd Specification provides a concise summary of the main features of the programd 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 programd.

1. Teaching Institution	Al Dwar Technical Institute
2. University Department/Centre	Mechanical Technical
3. Programd Title	Diploma in mechanical technical
4. Title of Final Award	Diploma in mechanical technical
5. Modes of Attendance offered	yearly
6. Accreditation	ABET
7. Other external influences	The labor market is to follow it up, to run training to train our students as appropriate, in addition to the summer training program
8. Date of production/revision of this specification	26/5/2021
9. Aims of the Program	
Vision: Department of mechanics is one of the main technological departments. The department aims at expanding the base of technical education and its modern applications to lead providing technical services depending on the spirit of competition and cooperation with society.	
Message: Department of mechanics adopts a general mission which depends in uts general form on the frame of technical teaching in Iraq. It attempts to achieve this mission	

every year to show the peculiarity of the department. The general objectives are training national technical cadres with efficient learning and training to able to comprehend the technical systems and to support the march of technical development to cope with fast world technical progress. The mission includes the following:

1. The use of computer technology and internet in teaching and training.
2. Activating the relations with the private sector in the fields of training.
3. Following up the development of the methods of training plans and modernizing workshops.
4. Cooperating with the business market and the needs of the society in training and rehabilitation.

10. Learning Outcomes, Teaching, Learning and Assessment Methods

A. Knowledge and Understanding

- A1. An ability to apply knowledge of mechanical fields.
- A2. Understand the professional and ethical responsibilities of the field of specialization.
- A3. The ability to evaluate course outcomes with the faculty, industrial practitioners, and professionals, as well as employers and graduate students for improvement.
- A4. Teaching leadership skills, values of commitment, ethical behavior, and respect for others.

B. Subject-specific skills

- B1. Ability to work and integrate in multi-disciplinary teams.
- B2. Ability to design and conduct seminars as well as analyze and interpret data.
- B3. The ability to use modern technologies, skills, and competent tools and the ability to identify and formulate mechanical problems in the field of specialization.

Teaching and Learning Methods

((Oral exams / written exams / weekly reports / daily attendance / quarterly and final exams))

Power point, Seminar, Discussion, Lecture, Test

Assessment methods

Quizzes; first term. Second term exam. And final exam.

C. Thinking Skills

C1. The ability to communicate effectively with those involved in the field of specialization.

C2. Acknowledgment of the need and ability to engage in lifelong learning and the broad learning necessary to understand the impact of global solutions, mechanical problems, and the social environment.

C3. Knowledge of contemporary issues in the field of specialization.

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

Assessment methods

Quizzes; first term. Second term exam. And final exam.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1. That the student be able to use the computer in designing, using modern programs, and using mechanics techniques

D2. The student learned some laws and theories of mathematics, which leads him to apply laws within the specialization

D3. The student learns the basics of occupational safety principles, in a way that contributes to preserving oneself, equipment, and various devices

D4. Teaching the student, the basic universal standards for human rights and successful democracy in developed countries.

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

Assessment Methods

Quizzes; first term. Second term exam. And final exam.

11. Program Structure				12. Awards and Credits
Level/Year	Course or Module Code	Course or Module Title	Credit rating	
First year	DIM11	Materials properties	4	Diploma degree requires (126) credits
	DIM12	Manufacturing process I	8	
	DIM13	Workshops I	16	
	DIM14	Mechanics	10	
	DIM15	Mathematics	4	
	DIM16	Computer applications I	6	
	DIM17	Electric technology	6	
	DIM18	Human rights	4	
	DIM19	Engineering drawing, I	6	
Second year	DIM21	Parts technique	6	
	DIM22	Manufacturing process II	8	
	DIM23	Metallurgy	8	
	DIM24	Workshops II	16	
	DIM25	Project	8	
	DIM26	Computer applications II	6	
	DIM27	Management and safety	4	
	DIM28	Engineering drawing II	6	

13. Personal Development Planning

1. The establishment of field visits to the public and private sectors and universities within the jurisdiction to see the field development in the field of specialization.
2. Involving students in seminars, scientific seminars, and training courses.

14. Admission criteria.

The criteria for admission to morning studies are considered within the central admission plan, which is approved by the Ministry of Higher Education and Scientific Research. As for the admission criteria for evening studies, they are identical to the actual admission plan for morning studies.

15. Key sources of information about the program

The programs and resources are approved by the sectoral committees at the university, and there is periodic updating on them through annual meetings in order to suit the labor market.

Curriculum Skills Map

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

				Program Learning Outcomes															
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
First year	DIM11	Materials properties	C	X				X	X			X				X	X		
	DIM12	Manufacturing process I	C	X	X			X	X			X	X			X	X		
	DIM13	Workshops I	C	X				X	X			X	X			X	X		
	DIM14	Mechanics	C	X				X	X			X				X	X		
	DIM15	Mathematics	C	X				X	X			X				X	X		
	DIM16	Computer applications I	C	X				X	X			X				X	X		
	DIM17	Electric technology	C	X				X	X			X	X			X	X		
	DIM18	Human rights	C	X				X	X			X	X			X	X		
	DIM19	Engineering drawing, I	C	X				X	X			X				X	X		
Second year	DIM21	Parts technique	C	X	X			X	X			X				X	X		
	DIM22	Manufacturing process II	C	X	X			X	X			X				X	X		
	DIM23	Metallurgy	C	X	X			X	X			X				X	X		
	DIM24	Workshops II	C	X	X			X	X			X				X	X		
	DIM25	Project	C	X	X			X	X			X				X	X		
	DIM26	Computer applications II	C	X	X			X	X			X				X	X		
	DIM27	Management and safety	C	X	X			X	X			X				X	X		
	DIM28	Engineering drawing II	C	X	X			X	X			X				X	X		

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAM 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 program specification.

1. Teaching Institution	Al Dwar Technical Institute
2. University Department/Centre	Mechanical technical department
3. Course title/code	Manufacturing process I DIM12
4. Program(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	compulsory
6. Semester/Year	First year
7. Number of hours tuition (total)	120 hours
8. Date of production/revision of this specification	27/5/2021
9. Aims of the Course	

10. Learning Outcomes, Teaching, Learning and Assessment Method

A- Knowledge and Understanding

- A1. Study the engineering properties of materials and amorphous and identify the mechanical properties of metals and alloys.
- A2.
- A3.
- A4.

B. Subject-specific skills

- B1. Capability to manage projects
- B2. The ability to solve problems on the job site and solve crises in this field

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

C. Thinking Skills

- C1. Carry out his duties on the job site with professional motives.
- C2.
- C3.
- C4.

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4	Knowledge and Experimental application	Definition of measurement and units of measurement, error and its causes, main dimensional measurement methods, simple conveyor measurement devices	Theoretical lecture	Tests and reports
2	4	Knowledge and Experimental application	Qadamat al-Qiyas (Al-Farniyat), its parts, uses, and types.	Theoretical lecture	Tests and reports
3	4	Knowledge and Experimental application	Micrometers, their types, uses, parts, the idea of \ u200b \ u200bthe micrometer	Power point, Lecture	Tests and reports
4	4	Knowledge and Experimental application	Measurement templates and their uses, types, method of use.	Power point, Lecture	Tests and reports
5	4	Knowledge and Experimental application	Measuring angles and side shapes. Angle measuring tools. Measuring bars (sprinkles) are of different types.	Power point, Lecture	Tests and reports
6	4	Knowledge and Experimental application	Measuring method for screw elements, external and internal diameters, step measurement and step diameter, electro-mechanical comparators.	Power point, Lecture	Tests and reports
7	4	Knowledge and Experimental application	Optical device, some modern measurement methods (audio frequency meters, optical digital).	Power point, Lecture	Tests and reports
8	4	Knowledge and Experimental application	Refrigerators and their role in industrial development, the shankara process, the tools used and the processes involved in the cold process, the files used and their specifications, the machines and their types and methods of attaching the artifacts to them, the uses of the files, the method of cleaning files.	Power point, Lecture	Tests and reports
9	4	Knowledge and Experimental application	Chainsaw cutting, the conditions to be met in the sawing process, sawing weapons, crowns and their types, crowns, method of enactment and maintenance, types of hammer heads and method of fixing them.	Power point, Lecture	Tests and reports

10	4	Knowledge and Experimental application	Piercing and bulgurina, types of perforations, types of primers, types of remers, how to perform the process of drilling and bulging.	Power point, Lecture	Tests and reports
11	4	Knowledge and Experimental application	Models, types, wood used in their manufacture, conditions that must be provided in the form.	Power point, Lecture	Tests and reports
12	4	Knowledge and Experimental application	The tools and devices used in making the model, the inflorescence templates, and a simple model design method.	Power point, Lecture	Tests and reports
13	4	Knowledge and Experimental application	Casting, historical overview, roads, major casting (casting, sand casting, casting, other methods of casting) The advantages of the casting process.	Power point, Lecture	Tests and reports
14	4	Knowledge and Experimental application	Foundry sand, casting sand, specifications, components, casting sand, used appliances, and additives to casting sand.	Power point, Lecture	Tests and reports
15	4	Knowledge and Experimental application	Pruning and tools used in the preparation of sand molds, simple and seat lasts, parasitic molds and exclusionary molds used.	Power point, Lecture	Tests and reports
16	4	Knowledge and Experimental application	The pulp, its types, the pulp sand, the proportions of the mixture and the additives to it, the stages of its work (mixing and preparing sand, making the ball, drying) the benefit of the drying process furnaces or methods of drying the core and its equipment.	Power point, Lecture	Tests and reports
17	4	Knowledge and Experimental application	Casting, types, centrifugal casting, types.	Power point, Lecture	Tests and reports
18	4	Knowledge and Experimental application	Casting with lost wax, continuous casting, shell casting.	Power point, Lecture	Tests and reports
19	4	Knowledge and Experimental application	Metal smelting and their foundations, types of melting furnaces, cupola furnaces, main dimensions and operation method, furnace furnaces, electric arc furnaces, inverter furnaces, rotary kilns.	Power point, Lecture	Tests and reports
20	4	Knowledge and Experimental application	Casting castings, their equipment and foundations, cleaning castings, casting defects, checking castings.	Power point, Lecture	Tests and reports
21	4	Knowledge and Experimental application	Welding, foundations for metal welding, clarifying the main methods of welding which (pressure welding, electric arc	Power point, Lecture	Tests and reports

			fusion welding, other methods for smelting welding, tress welding and caustic welding) Types of welding joints		
22	4	Knowledge and Experimental application	Hot pressure welding including (electromotive resistance welding including point and line welding, flash welding) cold pressure welding, explosive pressure welding, ultrasound pressure welding	Power point, Lecture	Tests and reports
23	4	Knowledge and Experimental application	Smelting and gas welding, oxy-hydrogen and oxy-acetylene welding, types of flame, right and left-hand welding, balla and acetylene cutting.	Power point, Lecture	Tests and reports
24	4	Knowledge and Experimental application	Electric arc welding, welding current, direct polarity and reverse polarity method, types of electrodes, coating and types of metal electrodes.	Power point, Lecture	Tests and reports
25	4	Knowledge and Experimental application	Electrode movement, electrode isolation and welding area methods, electric arc welding using protective gases (carbon dioxide welding, argon arc welding, vapor welding(	Power point, Lecture	Tests and reports
26	4	Knowledge and Experimental application	Atomic Hydrogen Electric Arc Welding, Guided Arc Welding, Flux Fusion Welding.	Power point, Lecture	Tests and reports
27	4	Knowledge and Experimental application	Bracing and caustic welding (mortar welding and casting welding) and some modern types of welding (laser beam welding, electron beam welding.(	Power point, Lecture	Tests and reports
28	4	Knowledge and Experimental application	Welding defects, welding tests.	Power point, Lecture	Tests and reports
29	4	Knowledge and Experimental application	Metal forming, formation theory, cold and hot forming foundations, forging, foundations and methods of forging (manual, mechanical) forging equipment, manual and mechanical, steel forging elements.	Power point, Lecture	Tests and reports
30	4	Knowledge and Experimental application	Special forging methods, forging molds and their manufacture, effective force, explaining the various forging processes (communication, methods of different engineering sections in cutting operations, making simple runways, forming various artifacts).	Power point, Lecture	Tests and reports

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	<ol style="list-style-type: none"> 1. Available in the free section and library of the institute. 2. Available in the free section and library of the institute.
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (Include for example, guest Lectures, internship, field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	40
Maximum number of students	100

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAM 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 program specification.

1. Teaching Institution	Al Dwar Technical Institute
2. University Department/Centre	Mechanical technical department
3. Course title/code	Materials properties DIM11
4. Program(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	compulsory
6. Semester/Year	First year
7. Number of hours tuition (total)	60 hours
8. Date of production/revision of this specification	27/5/2021
9. Aims of the Course	Study the engineering properties of materials and amorphous and identify the mechanical properties of metals and alloys.

10. Learning Outcomes, Teaching, Learning and Assessment Method

B- Knowledge and Understanding

A1. Study the engineering properties of materials and amorphous and identify the mechanical properties of metals and alloys.

A2.

A3.

A4.

B. Subject-specific skills

B1. Capability to manage projects

B2. The ability to solve problems on the job site and solve crises in this field

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

C. Thinking Skills

C1. Carry out his duties on the job site with professional motives.

C2.

C3.

C4.

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1. Improve their debating skills

D2. Raise their research perceptions and move the student from education to learning

D3.

D4.

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2	Knowledge and Experimental application	Introduction	Theoretical lecture	Tests and reports
2	2	Knowledge and Experimental application	The atom, the element, types of bonds in engineering materials.	Theoretical lecture	Tests and reports
3	2	Knowledge and Experimental application	Crystalline and amorphous materials	Power point, Lecture	Tests and reports
4	2	Knowledge and Experimental application	Crystalline forms (H.C.P) (F.C.C) (B.C.C).	Power point, Lecture	Tests and reports
5	2	Knowledge and Experimental application	Mechanical properties of materials. (Stress, strain-strain-strain-flexion, ductility, collapse).	Power point, Lecture	Tests and reports
6	2	Knowledge and Experimental application	Hardness, hardness test.	Power point, Lecture	Tests and reports
7	2	Knowledge and Experimental application	Supplement.	Power point, Lecture	Tests and reports
8	2	Knowledge and Experimental application	Toughness, toughness test	Power point, Lecture	Tests and reports
9	2	Knowledge and Experimental application	Thermal properties of materials. (Thermal expansion, thermal conductivity)	Power point, Lecture	Tests and reports
10	2	Knowledge and Experimental application	Electrical properties of materials (ionic materials, insulating materials, metallic materials, factors affecting conductivity).	Power point, Lecture	Tests and reports
11	2	Knowledge and Experimental application	Magnetic properties of materials (Ferromagnetic materials, paramagnetic materials, diamagnetic materials, magnetic retardation, factors affecting magnetism).	Power point, Lecture	Tests and reports
12	2	Knowledge and Experimental application	Chemical properties of materials (Corrosion, electrochemical chain, oxidation)	Power point, Lecture	Tests and reports
13	2	Knowledge and Experimental application	Iron, its most important material, its extraction, blast furnace, and transformers.	Power point, Lecture	Tests and reports
14	2	Knowledge and Experimental application	Carbon steel, its most important types, properties, and uses.	Power point, Lecture	Tests and reports
15	2	Knowledge and Experimental application	Alloy steel, its most important types, properties, and uses	Power point, Lecture	Tests and reports

16	2	Knowledge and Experimental application	Cast iron, types, properties, uses	Power point, Lecture	Tests and reports
17	2	Knowledge and Experimental application	supplement	Power point, Lecture	Tests and reports
18	2	Knowledge and Experimental application	Copper, its alloys, properties, uses.	Power point, Lecture	Tests and reports
19	2	Knowledge and Experimental application	Aluminum, its alloys, properties, uses.	Power point, Lecture	Tests and reports
20	2	Knowledge and Experimental application	Nickel, its alloys, properties, uses	Power point, Lecture	Tests and reports
21	2	Knowledge and Experimental application	Tin, its alloys, properties, uses. Zinc, its alloys, properties, uses. Manganese, its alloys, properties, uses.	Power point, Lecture	Tests and reports
22	2	Knowledge and Experimental application	Other nonferrous alloys (white metals, bearings alloys)	Power point, Lecture	Tests and reports
23	2	Knowledge and Experimental application	Powder metallurgy (Methods for obtaining mineral powders, mechanical methods, physical and chemical methods, natural, mechanical, and chemical properties of powders.	Power point, Lecture	Tests and reports
24	2	Knowledge and Experimental application	Powder pressing, sintering process	Power point, Lecture	Tests and reports
25	2	Knowledge and Experimental application	Ceramic materials	Power point, Lecture	Tests and reports
26	2	Knowledge and Experimental application	Glass, types, manufacture, uses	Power point, Lecture	Tests and reports
27	2	Knowledge and Experimental application	Concrete, its industrial uses	Power point, Lecture	Tests and reports
28	2	Knowledge and Experimental application	Polymers, polymer molecules, polymers.	Power point, Lecture	Tests and reports
29	2	Knowledge and Experimental application	Properties and uses of plastics.	Power point, Lecture	Tests and reports
30	2	Knowledge and Experimental application	Supplement plastics.	Power point, Lecture	Tests and reports

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	3. Available in the free section and library of the institute. 4. Available in the free section and library of the institute.
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (Include for example, guest Lectures, internship, field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	40
Maximum number of students	100

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAM 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 program specification.

1. Teaching Institution	Al Dwar Technical Institute
2. University Department/Centre	Mechanical technical department
3. Course title/code	Mathematics DIM15
4. Program(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	compulsory
6. Semester/Year	First year
7. Number of hours tuition (total)	60 hours
8. Date of production/revision of this specification	27/5/2021
9. Aims of the Course	

10. Learning Outcomes, Teaching, Learning and Assessment Method

C- Knowledge and Understanding

A1. Study the engineering properties of materials and amorphous and identify the mechanical properties of metals and alloys.

A2.

A3.

A4.

B. Subject-specific skills

B1. Capability to manage projects

B2. The ability to solve problems on the job site and solve crises in this field

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

C. Thinking Skills

C1. Carry out his duties on the job site with professional motives.

C2.

C3.

C4.

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1. Improve their debating skills

D2. Raise their research perceptions and move the student from education to learning

D3.

D4.

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2	Knowledge and Experimental application	Determinants and their properties. Solving simultaneous equations by the method of determinants (Cramer).	Theoretical lecture	Tests and reports
2	2	Knowledge and Experimental application	Determinants and their properties. Solving simultaneous equations by the method of determinants (Cramer).	Theoretical lecture	Tests and reports
3	2	Knowledge and Experimental application	Differentiation, Algebra of Derivatives, Multiple Functions	Power point, Lecture	Tests and reports
4	2	Knowledge and Experimental application	Differentiation, Algebra of Derivatives, Multiple Functions	Power point, Lecture	Tests and reports
5	2	Knowledge and Experimental application	Differentiation, Algebra of Derivatives, Multiple Functions	Power point, Lecture	Tests and reports
6	2	Knowledge and Experimental application	Trigonometric, logarithmic, exponential functions and their derivatives and implicit functions, chain rule.	Power point, Lecture	Tests and reports
7	2	Knowledge and Experimental application	Trigonometric, logarithmic, exponential functions and their derivatives and implicit functions, chain rule.	Power point, Lecture	Tests and reports
8	2	Knowledge and Experimental application	Trigonometric, logarithmic, exponential functions and their derivatives and implicit functions, chain rule.	Power point, Lecture	Tests and reports
9	2	Knowledge and Experimental application	Graphing functions, plotting the trigonometric function and the maxima and minima	Power point, Lecture	Tests and reports
10	2	Knowledge and Experimental application	Graphing functions, plotting the trigonometric function and the maxima and minima	Power point, Lecture	Tests and reports
11	2	Knowledge and Experimental application	Graphing functions, plotting the trigonometric function and the maxima and minima	Power point, Lecture	Tests and reports
12	2	Knowledge and Experimental application	Applications of physical differential, velocity and acceleration, and engineering differential applications	Power point, Lecture	Tests and reports
13	2	Knowledge and Experimental application	Applications of physical differential, velocity and acceleration, and engineering differential applications	Power point, Lecture	Tests and reports
14	2	Knowledge and Experimental application	Integral, laws, and its relationship to differentiation, definite and indeterminate integral.	Power point, Lecture	Tests and reports

15	2	Knowledge and Experimental application	Integral, laws, and its relationship to differentiation, definite and indeterminate integral.	Power point, Lecture	Tests and reports
16	2	Knowledge and Experimental application	Implicit integration, applications of geometric (areas and volumes) and physical integration	Power point, Lecture	Tests and reports
17	2	Knowledge and Experimental application	Implicit integration, applications of geometric (areas and volumes) and physical integration	Power point, Lecture	Tests and reports
18	2	Knowledge and Experimental application	Implicit integration, applications of geometric (areas and volumes) and physical integration	Power point, Lecture	Tests and reports
19	2	Knowledge and Experimental application	Implicit integration, applications of geometric (areas and volumes) and physical integration	Power point, Lecture	Tests and reports
20	2	Knowledge and Experimental application	General methods of integration, compensation, partial, and use of exponential and logarithmic partial fractions.	Power point, Lecture	Tests and reports
21	2	Knowledge and Experimental application	General methods of integration, compensation, partial, and use of exponential and logarithmic partial fractions.	Power point, Lecture	Tests and reports
22	2	Knowledge and Experimental application	Discrete, homogeneous, and linear differential equations with their different applications.	Power point, Lecture	Tests and reports
23	2	Knowledge and Experimental application	Discrete, homogeneous, and linear differential equations with their different applications.	Power point, Lecture	Tests and reports
24	2	Knowledge and Experimental application	Discrete, homogeneous, and linear differential equations with their different applications.	Power point, Lecture	Tests and reports
25	2	Knowledge and Experimental application	Discrete, homogeneous, and linear differential equations with their different applications.	Power point, Lecture	Tests and reports
26	2	Knowledge and Experimental application	Discrete, homogeneous, and linear differential equations with their different applications	Power point, Lecture	Tests and reports
27	2	Knowledge and Experimental application	Vectors (cross multiplication, quantification, angles between vectors.	Power point, Lecture	Tests and reports
28	2	Knowledge and Experimental application	Vectors (cross multiplication, quantification, angles between vectors.	Power point, Lecture	Tests and reports
29	2	Knowledge and Experimental application	Statistics (principles) and probability theory	Power point, Lecture	Tests and reports
30	2	Knowledge and Experimental application	Statistics (principles) and probability theory	Power point, Lecture	Tests and reports

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	5. Available in the free section and library of the institute. 6. Available in the free section and library of the institute.
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (Include for example, guest Lectures, internship, field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	40
Maximum number of students	100

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAM 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 program specification.

1. Teaching Institution	Al Dwar Technical Institute
2. University Department/Centre	Mechanical technical department
3. Course title/code	Workshop I DIM13
4. Program(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	compulsory
6. Semester/Year	First year
7. Number of hours tuition (total)	240 hours
8. Date of production/revision of this specification	27/5/2021
9. Aims of the Course	

10. Learning Outcomes, Teaching, Learning and Assessment Method

D- Knowledge and Understanding

A1. Study the engineering properties of materials and amorphous and identify the mechanical properties of metals and alloys.

A2.

A3.

A4.

B. Subject-specific skills

B1. Capability to manage projects

B2. The ability to solve problems on the job site and solve crises in this field

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

C. Thinking Skills

C1. Carry out his duties on the job site with professional motives.

C2.

C3.

C4.

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1. Improve their debating skills

D2. Raise their research perceptions and move the student from education to learning

D3.

D4.

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	8	Knowledge and Experimental application	Basic principles in model carpentry, definition of wood species and their uses, types of patterns, their carpentry, and their uses in plumbing. Model correction, conditions that must be met in correcting the model, the shrinkage factor, an exercise in executive drawing of simple models with a single bound and without a box. Equipment used, hand tools and mechanical equipment used, thickening machine, tray saw, band saw, tapping machine, sanding machine, transformer. Practical training for parts hanger according to the operational drawing on the labels.	Theoretical lecture	Tests and reports
2	8	Knowledge and Experimental application	Training completion, model parts finishing and assembly methods, final dimensions	Theoretical lecture	Tests and reports
3	8	Knowledge and Experimental application	Compound Models: Explanation of Polynomials, Inner Spaces	Power point, Lecture	Tests and reports
4	8	Knowledge and Experimental application	Metal casting and its importance, the purpose of using castings in the industry, the contents of the plumbing unit, industrial safety precautions for casting, the formation of a sand mold for a one-piece model in front of students, the sands of molds and cores, their types and sources, properties of additives, mixing processes, and adjusting amounts, use of sand mixer, sand treatment. Sand mold forming by manual methods of one-piece model to form sand mold.	Power point, Lecture	Tests and reports
5	8	Knowledge and Experimental application	Sand mold of a one-piece model with fixing outfall and elevators, metal smelting and casting, extraction, and cleaning of castings	Power point, Lecture	Tests and reports
6	8	Knowledge and Experimental application	Forming a sand mold like before, melting the metal into a mold, removing the cast and cleaning it	Power point, Lecture	Tests and reports
7	8	Knowledge and	Casting sand molds in a	Power point,	Tests and

		Experimental application	productive way, training on the use of plumbing panels that contain more than one piece in one mold and with cores, methods of cleaning castings with brushes, files, grinding stones, steel balls, compressed air, rotating machines, reviewing and examining castings, identifying the apparent defects and their causes, Reviewing the dimensions of castings, and ensuring that they match the required dimensions.	Lecture	reports
8	8	Knowledge and Experimental application	Casting sand molds for corrugated and composite models. These exercises are among the exercises that the student will complete as they work in other laboratories.	Power point, Lecture	Tests and reports
9	8	Knowledge and Experimental application	Metal melting furnaces, types, characteristics, uses, rotary kiln, stirred, static furnaces	Power point, Lecture	Tests and reports
10	8	Knowledge and Experimental application	1 -Industrial development and the role of the refrigerator from it. 2 -The vernier foot of all kinds. Methods of measurement with it. How to make a vernier that reads the altimeter with depths, the vernier. 3 -Shankara process The basic surfaces, the number used, the materials for displaying the shock thorn, the just men, the men of the shankara, the guilt and the guilt, the right angle, the flowers of the shankara, the normal and sensitive shankars, the altimeter, the collector protractor and measuring angles, a practical exercise that combines the operations of the shankara. 4 -The files and the cold process Types of files, their specifications, types, and methods of linking artifacts to their work.	Power point, Lecture	Tests and reports
11	8	Knowledge and Experimental application	The uses of files, the method of cleaning files, the cold process, an exercise on the simple shankara and filo. Chainsaw cutting Hand saw, saw weapon, fixing saw weapon, conditions to be met in sawing, chainsaw cutting	Power point, Lecture	Tests and reports

			exercise.		
12	8	Knowledge and Experimental application	<p>1 -Ionization process Types of embryos, embryo notching and maintenance, types of hand hammer heads, method of fixing the hammer head, an exercise in the ionization process.</p> <p>2 - The process of piercing and bulging Types of drills, types of primers, types of remers, how to perform the drilling and bulging process, an exercise in manual and mechanical drilling operations after performing the socket operations.</p> <p>3 -The screws Types of screws, internal and external dental schedules Training to perform various screwdriving operations.</p>	Power point, Lecture	Tests and reports
13	8	Knowledge and Experimental application	Various training on the work of the filings.	Power point, Lecture	Tests and reports
14	8	Knowledge and Experimental application	The importance of maintenance for machinery and equipment, clarifying the periodic and comprehensive maintenance processes, and how to prepare maintenance reports	Power point, Lecture	Tests and reports
15	8	Knowledge and Experimental application	<ol style="list-style-type: none"> of sealants, sealants, their uses, methods of fixing and removing them, and reviewing their work Types of valves, methods of operation, detection, and repair. 	Power point, Lecture	Tests and reports
16	8	Knowledge and Experimental application	Occupational safety and security precautions: gas welding, the equipment used and how to install and adjust them, the number of other auxiliaries and the gases used and their specifications, welding wires, types and measurements thereof, other auxiliary materials, welding equipment, types of flame and method of ignition and setting the required flame, workpieces rinsing and cleaning the edges required to be welded.	Power point, Lecture	Tests and reports
17	8	Knowledge and Experimental application	Practical exercises: Cross-surface welding, orthogonal surfaces, oblique surfaces, circle welding,	Power point, Lecture	Tests and reports

			longitudinal and transverse cutting		
18	8	Knowledge and Experimental application	Welding equipment, practical training in the use of electric arc in welding various surfaces, equipment used, electrodes and their installation method, practical training	Power point, Lecture	Tests and reports
19	8	Knowledge and Experimental application	CO ₂ gas welding and gas cutting operations, equipment used and precautions to be met Doing exercises on welding workpieces using CO ₂ gas	Power point, Lecture	Tests and reports
20	8	Knowledge and Experimental application	Training in gas-shielded arc welding processes (Tig, Mig).	Power point, Lecture	Tests and reports
21	8	Knowledge and Experimental application	Assembly drills using various different cutting and welding processes.	Power point, Lecture	Tests and reports
22	8	Knowledge and Experimental application	Bending billet cutting equipment, rolling machine, manual grooving and tooling machine, manual billet use and bending, standard screwing, menu and drawing method, simple individuations, disconnected and incomplete actuators singularity calculation.	Power point, Lecture	Tests and reports
23	8	Knowledge and Experimental application	Training on calculating the single cross artifacts, doing an exercise for two crossed cylinders.	Power point, Lecture	Tests and reports
24	8	Knowledge and Experimental application	Sections of cone and minus cone	Power point, Lecture	Tests and reports
25	8	Knowledge and Experimental application	Lathe, specifications, uses, accessories, installation methods, lathe operation, types of lathe pens using each of them.	Power point, Lecture	Tests and reports
26	8	Knowledge and Experimental application	Turning operations: Flat turning, adjustment, center work, simple graduated exercise, use of measuring tools.	Power point, Lecture	Tests and reports
27	8	Knowledge and Experimental application	Lathing of the external stalk by different methods, explaining the laws for each method. Doing an exercise for the external lever	Power point, Lecture	Tests and reports
28	8	Knowledge and Experimental application	<ol style="list-style-type: none"> 1. Work the different teeth externally (triangle) Do an exercise that includes the tooth of the triangle. 2. The work of the tooth an external box and an exercise. 	Power point, Lecture	Tests and reports
29	8	Knowledge and	Cutting speeds, selection and	Power point,	Tests and

		Experimental application	use of their tables	Lecture	reports
30	8	Knowledge and Experimental application	Implementation of training on decentralized turning and use of quadruple sample.	Power point, Lecture	Tests and reports

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	7. Available in the free section and library of the institute. 8. Available in the free section and library of the institute.
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (Include for example, guest Lectures, internship, field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	40
Maximum number of students	100

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAM 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 program specification.

1. Teaching Institution	Al Dwar Technical Institute
2. University Department/Centre	Mechanical technical department
3. Course title/code	Mechanics DIM14
4. Program(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	compulsory
6. Semester/Year	First year
7. Number of hours tuition (total)	150 hours
8. Date of production/revision of this specification	27/5/2021
9. Aims of the Course	Work to enhance the student's confidence in his engineering abilities and to crystallize his scientific and regular personality, which qualifies him after graduation to contribute effectively to community service.

10. Learning Outcomes, Teaching, Learning and Assessment Method

E- Knowledge and Understanding

A1. Study the engineering properties of materials and amorphous and identify the mechanical properties of metals and alloys.

A2.

A3.

A4.

B. Subject-specific skills

B1. Capability to manage projects

B2. The ability to solve problems on the job site and solve crises in this field

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

C. Thinking Skills

C1. Carry out his duties on the job site with professional motives.

C2.

C3.

C4.

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1. Improve their debating skills

D2. Raise their research perceptions and move the student from education to learning

D3.

D4.

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	5	Knowledge and Experimental application	Static, fundamental concepts, Force, Scalars and, Vectors, Units , Force polygon , Cartesian Components .	Theoretical lecture	Tests and reports
2	5	Knowledge and Experimental application	Analysis of Forces	Theoretical lecture	Tests and reports
3	5	Knowledge and Experimental application	Resultant of Concurrent, Coplanar Force system (2-D)	Power point, Lecture	Tests and reports
4	5	Knowledge and Experimental application	Moments	Power point, Lecture	Tests and reports
5	5	Knowledge and Experimental application	Couples, transformation of the Couple and the force	Power point, Lecture	Tests and reports
6	5	Knowledge and Experimental application	Resultant of non –Concurrent, Coplanar force system (3-D) .	Power point, Lecture	Tests and reports
7	5	Knowledge and Experimental application	Equilibrium, free body diagram (F.B.D.)	Power point, Lecture	Tests and reports
8	5	Knowledge and Experimental application	Equilibrium Conditions (2-D)	Power point, Lecture	Tests and reports
9	5	Knowledge and Experimental application	Equilibrium Conditions (3-D)	Power point, Lecture	Tests and reports
10	5	Knowledge and Experimental application	Friction, Dry Friction	Power point, Lecture	Tests and reports
11	5	Knowledge and Experimental application	Center of Gravity, Centroid, Centroid of Simple area	Power point, Lecture	Tests and reports
12	5	Knowledge and Experimental application	Centroids of Composite areas.	Power point, Lecture	Tests and reports
13	5	Knowledge and Experimental application	Moment of inertia (Simple and Composite areas).	Power point, Lecture	Tests and reports
14	5	Knowledge and Experimental application	2-Dynamics type of motion, Linear motion with constant speed .	Power point, Lecture	Tests and reports
15	5	Knowledge and Experimental application	Linear motion with Constant acceleration.	Power point, Lecture	Tests and reports
16	5	Knowledge and Experimental application	Newton’s Second Law	Power point, Lecture	Tests and reports

17	5	Knowledge and Experimental application	Curvilinear motion	Power point, Lecture	Tests and reports
18	5	Knowledge and Experimental application	Angular motion, Relative Motion.	Power point, Lecture	Tests and reports
19	5	Knowledge and Experimental application	Work, Energy, Power	Power point, Lecture	Tests and reports
20	5	Knowledge and Experimental application	3-Strength of material: Fundamental concept, Loads, Stress, Strain , Elasticity , Plasticity, Deformation .	Power point, Lecture	Tests and reports
21	5	Knowledge and Experimental application	Hook's Law, Stress -strain curve, type of stress .	Power point, Lecture	Tests and reports
22	5	Knowledge and Experimental application	Normal stress due to an axial load on 1-Uniformam Cross section area 2- Variable cross section area .	Power point, Lecture	Tests and reports
23	5	Knowledge and Experimental application	Shear Stress	Power point, Lecture	Tests and reports
24	5	Knowledge and Experimental application	Torsional Stress	Power point, Lecture	Tests and reports
25	5	Knowledge and Experimental application	Thermal Stress	Power point, Lecture	Tests and reports
26	5	Knowledge and Experimental application	Beams, types of loads , types of beams .	Power point, Lecture	Tests and reports
27	5	Knowledge and Experimental application	Shear force (S.F.) & bending moment (B.M.) of Simple supported beam under an –axial load .	Power point, Lecture	Tests and reports
28	5	Knowledge and Experimental application	Shear force (S.F.) & bending moment (B.M.) of Simple supported beam under uniform distributed Load .	Power point, Lecture	Tests and reports
29	5	Knowledge and Experimental application	Shear force (S.F.) & bending moment (B.M.) of cantilever beam under an –axial load .	Power point, Lecture	Tests and reports
30	5	Knowledge and Experimental application	Shear force (S.F.) & bending moment (B.M.) of cantilever beam under uniform distributed Load .	Power point, Lecture	Tests and reports

12. Infrastructure

Required reading:

- CORE TEXTS
- COURSE MATERIALS
- OTHER

9. Available in the free section and library of the institute.

10. Available in the free section and library of the institute.

Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (Include for example, guest Lectures, internship, field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	40
Maximum number of students	100

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAM 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 program specification.

1. Teaching Institution	Al Dwar Technical Institute
2. University Department/Centre	Mechanical technical department
3. Course title/code	Human rights DIM18
4. Program(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	compulsory
6. Semester/Year	First year
7. Number of hours tuition (total)	60 hours
8. Date of production/revision of this specification	27/5/2021
9. Aims of the Course	

10. Learning Outcomes, Teaching, Learning and Assessment Method

F- Knowledge and Understanding

A1. Study the engineering properties of materials and amorphous and identify the mechanical properties of metals and alloys.

A2.

A3.

A4.

B. Subject-specific skills

B1. Capability to manage projects

B2. The ability to solve problems on the job site and solve crises in this field

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

C. Thinking Skills

C1. Carry out his duties on the job site with professional motives.

C2.

C3.

C4.

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2	Knowledge and Experimental application	Human rights - their definition - their goals	Theoretical lecture	Tests and reports
2	2	Knowledge and Experimental application	The Roots and Development of Human Rights in Human History - Human Rights in Antiquity and the Middle Ages	Theoretical lecture	Tests and reports
3	2	Knowledge and Experimental application	Human rights in ancient civilizations, especially the Mesopotamian civilization	Power point, Lecture	Tests and reports
4	2	Knowledge and Experimental application	Human rights in the divine laws with a focus on human rights in Islam.	Power point, Lecture	Tests and reports
5	2	Knowledge and Experimental application	Medieval human rights: human rights in doctrines, schools and political theories - Human rights in companies and their declarations, revolutions and constitutions (English documents - American Revolution - French Revolution - Russian Revolution)	Power point, Lecture	Tests and reports
6	2	Knowledge and Experimental application	Human Rights in Contemporary and Modern History - International recognition of human rights since the First World War and disobedience - the United Nations)	Power point, Lecture	Tests and reports
7	2	Knowledge and Experimental application	Regional recognition of human rights - European Convention on Human Rights 1950 - American Convention on Human Rights 1969 - African Charter on Human Rights 1981 - Arab Charter on Human Rights 1994.	Power point, Lecture	Tests and reports
8	2	Knowledge and Experimental application	Non-governmental organizations and human rights (International Committee of the Red Cross - Amnesty International - Human Rights Watch)	Power point, Lecture	Tests and reports
9	2	Knowledge and Experimental application	National human rights organizations	Power point, Lecture	Tests and reports

10	2	Knowledge and Experimental application	Human rights in Iraqi constitutions between theory and reality	Power point, Lecture	Tests and reports
11	2	Knowledge and Experimental application	The relationship between human rights and public freedoms: 1 -In the Universal Declaration of Human Rights. 2- In regional charters and national constitutions.	Power point, Lecture	Tests and reports
12	2	Knowledge and Experimental application	The relationship between human rights and public freedoms: 1 -In the Universal Declaration of Human Rights. 2- In regional charters and national constitutions.	Power point, Lecture	Tests and reports
13	2	Knowledge and Experimental application	Essential human rights and collective human rights.	Power point, Lecture	Tests and reports
14	2	Knowledge and Experimental application	Economic, social, and cultural human rights, civil and political human rights	Power point, Lecture	Tests and reports
15	2	Knowledge and Experimental application	Modern human rights: facts in development - the right to a clean environment - the right to true solidarity.	Power point, Lecture	Tests and reports
16	2	Knowledge and Experimental application	Guarantees of respect and protection of human rights at the national level - guarantees in the constitution and laws - guarantees in the principle of rule of law	Power point, Lecture	Tests and reports
17	2	Knowledge and Experimental application	Guarantees in constitutional oversight - and guarantees for freedom of the press - Public opinion - The role of NGOs in respecting and protecting human rights.	Power point, Lecture	Tests and reports
18	2	Knowledge and Experimental application	Guarantees, respect and protection of human rights at the international level: - The role of the United Nations and its specialized agencies in providing guarantees.	Power point, Lecture	Tests and reports
19	2	Knowledge and Experimental application	Guarantees, respect and protection of human rights at the international level: - The role of the United Nations and its specialized agencies in providing guarantees.	Power point, Lecture	Tests and reports
20	2	Knowledge and Experimental application	The role of regional organizations - (Arab League - European Union - African Union - Organization of American States - ASEAN)	Power point, Lecture	Tests and reports
21	2	Knowledge and Experimental	General theories of freedoms - the origin of rights and freedoms	Power point, Lecture	Tests and reports

		application	- the project's position on the declared rights and freedoms - the use of the term public freedoms.		
22	2	Knowledge and Experimental application	The functional nature of the concept of public freedoms: the philosophical considerations of the functional right - the structural considerations of the positive right - the economic considerations and public freedoms	Power point, Lecture	Tests and reports
23	2	Knowledge and Experimental application	The functional nature of the concept of public freedoms: the philosophical considerations of the functional right - the structural considerations of the positive right - the economic considerations and public freedoms	Power point, Lecture	Tests and reports
24	2	Knowledge and Experimental application	Regulating public freedoms by public authorities	Power point, Lecture	Tests and reports
25	2	Knowledge and Experimental application	Litigation or non-judicial grievance	Power point, Lecture	Tests and reports
26	2	Knowledge and Experimental application	Judicial Challenge - Determine the state's responsibility for its legitimate enforcement	Power point, Lecture	Tests and reports
27	2	Knowledge and Experimental application	The effect of duplication of eliminating public freedoms Public freedoms under administrative jurisprudence	Power point, Lecture	Tests and reports
28	2	Knowledge and Experimental application	Equality: the historical development of the concept of equality	Power point, Lecture	Tests and reports
29	2	Knowledge and Experimental application	The recent development of the idea of equality	Power point, Lecture	Tests and reports
30	2	Knowledge and Experimental application	gender equality Equality between individuals according to their beliefs and their member.	Power point, Lecture	Tests and reports

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	11. Available in the free section and library of the institute. 12. Available in the free section and library of the institute.
Special requirements (include for example workshops, periodicals, IT software, websites)	

Community-based facilities (Include for example, guest Lectures, internship, field studies)	
---	--

13. Admissions	
Pre-requisites	
Minimum number of students	40
Maximum number of students	100

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAM 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 program specification.

1. Teaching Institution	Al Dwar Technical Institute
2. University Department/Centre	Mechanical technical department
3. Course title/code	Engineering Drawing DIM19
4. Program(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	compulsory
6. Semester/Year	First year
7. Number of hours tuition (total)	90 hours
8. Date of production/revision of this specification	27/5/2021
9. Aims of the Course	

10. Learning Outcomes, Teaching, Learning and Assessment Method

G- Knowledge and Understanding

A1. Study the engineering properties of materials and amorphous and identify the mechanical properties of metals and alloys.

A2.

A3.

A4.

B. Subject-specific skills

B1. Capability to manage projects

B2. The ability to solve problems on the job site and solve crises in this field

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

C. Thinking Skills

C1. Carry out his duties on the job site with professional motives.

C2.

C3.

C4.

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1. Improve their debating skills

D2. Raise their research perceptions and move the student from education to learning

D3.

D4.

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3	Knowledge and Experimental application	The importance of engineering drawing, the importance of using the computer to implement the engineering drawing, the sizes of standard drawing boards, an overview of the AutoCAD program	Theoretical lecture	Tests and reports
2	3	Knowledge and Experimental application	Preparation for drawing using the Title Block computer	Theoretical lecture	Tests and reports
3	3	Knowledge and Experimental application	Drawing geometric shapes using the computer	Power point, Lecture	Tests and reports
4	3	Knowledge and Experimental application	Graphic adjustments, CAD aids	Power point, Lecture	Tests and reports
5	3	Knowledge and Experimental application	Graphic adjustments, CAD aids	Power point, Lecture	Tests and reports
6	3	Knowledge and Experimental application	Perspective drawing, a perspective drawing containing a circle represented by an oval.	Power point, Lecture	Tests and reports
7	3	Knowledge and Experimental application	Perspective drawing, a perspective drawing containing a circle represented by an oval	Power point, Lecture	Tests and reports
8	3	Knowledge and Experimental application	Perspective drawing, a perspective drawing containing a circle represented by an oval	Power point, Lecture	Tests and reports
9	3	Knowledge and Experimental application	Perspective drawing, a perspective drawing containing a circle represented by an oval	Power point, Lecture	Tests and reports
10	3	Knowledge and Experimental application	Projection theory, simplified projection	Power point, Lecture	Tests and reports
11	3	Knowledge and Experimental application	Projection theory, simplified projection	Power point, Lecture	Tests and reports
12	3	Knowledge and Experimental application	Principal projections, even angles, drawing according to the theory of the first even projection angle, drawing according to the theory of the third even projection angle.	Power point, Lecture	Tests and reports
13	3	Knowledge and Experimental application	Principal projections, even angles, drawing according to the theory of the first even projection angle, drawing according to the theory of the	Power point, Lecture	Tests and reports

			third even projection angle.		
14	3	Knowledge and Experimental application	Principal projections, even angles, drawing according to the theory of the first even projection angle, drawing according to the theory of the third even projection angle.	Power point, Lecture	Tests and reports
15	3	Knowledge and Experimental application	Principal projections, even angles, drawing according to the theory of the first even projection angle, drawing according to the theory of the third even projection angle.	Power point, Lecture	Tests and reports
16	3	Knowledge and Experimental application	Draw the three principal projections with the even angle and note the difference between them.	Power point, Lecture	Tests and reports
17	3	Knowledge and Experimental application	Draw the three principal projections with the even angle and note the difference between them.	Power point, Lecture	Tests and reports
18	3	Knowledge and Experimental application	Deduction of the third projection from the two projections	Power point, Lecture	Tests and reports
19	3	Knowledge and Experimental application	Deduction of the third projection from the two projections	Power point, Lecture	Tests and reports
20	3	Knowledge and Experimental application	Deduce the perspective from two or three projections.	Power point, Lecture	Tests and reports
21	3	Knowledge and Experimental application	Deduce the perspective from two or three projections.	Power point, Lecture	Tests and reports
22	3	Knowledge and Experimental application	Cutting theory, cutting shapes and lines by type of material, cutting projections.	Power point, Lecture	Tests and reports
23	3	Knowledge and Experimental application	Cutting theory, cutting shapes and lines by type of material, cutting projections.	Power point, Lecture	Tests and reports
24	3	Knowledge and Experimental application	A drawing of projections cut from one specific location	Power point, Lecture	Tests and reports
25	3	Knowledge and Experimental application	A drawing of projections cut from one specific location	Power point, Lecture	Tests and reports
26	3	Knowledge and Experimental application	Partially cut Muscat fee	Power point, Lecture	Tests and reports
27	3	Knowledge and Experimental application	Partially cut Muscat fee	Power point, Lecture	Tests and reports
28	3	Knowledge and Experimental application	Draw a half-cut cross section, draw zigzag sections.	Power point, Lecture	Tests and reports

29	3	Knowledge and Experimental application	Draw a half-cut cross section, draw zigzag sections.	Power point, Lecture	Tests and reports
30	3	Knowledge and Experimental application	Draw a half-cut cross section, draw zigzag sections.	Power point, Lecture	Tests and reports

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	13. Available in the free section and library of the institute. 14. Available in the free section and library of the institute.
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (Include for example, guest Lectures, internship, field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	40
Maximum number of students	100

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAM 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 program specification.

1. Teaching Institution	Al Dwar Technical Institute
2. University Department/Centre	Mechanical technical department
3. Course title/code	Electrical technology DIM17
4. Program(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	compulsory
6. Semester/Year	First year
7. Number of hours tuition (total)	90 hours
8. Date of production/revision of this specification	27/5/2021
9. Aims of the Course	

10. Learning Outcomes, Teaching, Learning and Assessment Method

H- Knowledge and Understanding

A1. Study the engineering properties of materials and amorphous and identify the mechanical properties of metals and alloys.

A2.

A3.

A4.

B. Subject-specific skills

B1. Capability to manage projects

B2. The ability to solve problems on the job site and solve crises in this field

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

C. Thinking Skills

C1. Carry out his duties on the job site with professional motives.

C2.

C3.

C4.

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1. Improve their debating skills

D2. Raise their research perceptions and move the student from education to learning

D3.

D4.

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3	Knowledge and Experimental application	First - the basics of electricity	Theoretical lecture	Tests and reports
2	3	Knowledge and Experimental application	Electrical units and symbols, simple circuit, current strength of electric driving force.	Theoretical lecture	Tests and reports
3	3	Knowledge and Experimental application	Potential difference, Ohm's law, methods of connecting resistors (series, parallel, compound)	Power point, Lecture	Tests and reports
4	3	Knowledge and Experimental application	Practical examples of solving electrical circuits.	Power point, Lecture	Tests and reports
5	3	Knowledge and Experimental application	Second: alternating (variable) current	Power point, Lecture	Tests and reports
6	3	Knowledge and Experimental application	Methods for obtaining alternating current, types of electric power plants.	Power point, Lecture	Tests and reports
7	3	Knowledge and Experimental application	Sine wave, waveform of current with time, frequency, definition of effective value of alternating current and voltage	Power point, Lecture	Tests and reports
8	3	Knowledge and Experimental application	Knowledge of power factor and functions, applications and examples of the use of alternating current in practical life.	Power point, Lecture	Tests and reports
9	3	Knowledge and Experimental application	Third: electromagnetism	Power point, Lecture	Tests and reports
10	3	Knowledge and Experimental application	Magnetic field, field properties, magnetic properties, types of magnetic materials, definitions of (field density, field strength, magnetic momentum).	Power point, Lecture	Tests and reports
11	3	Knowledge and Experimental application	The magnetic effect of electric current Applications to the use of the magnetic attraction force.	Power point, Lecture	Tests and reports
12	3	Knowledge and Experimental application	Fourth: the alternating current has three sides	Power point, Lecture	Tests and reports
13	3	Knowledge and Experimental application	Single-sided alternating current, three-phase alternating current, faceted identification method, external overall wiring system.	Power point, Lecture	Tests and reports
14	3	Knowledge and Experimental application	Star (Y) connection method, face current and line current from star, face voltage and line voltage from star, power in the case of a three-phase system,	Power point, Lecture	Tests and reports

			method for conducting electrical loads.		
15	3	Knowledge and Experimental application	Delta () connection method, face current and line current in the case of delta face and line voltage, power Applications and examples of star and delta connection.	Power point, Lecture	Tests and reports
16	3	Knowledge and Experimental application	Delta () connection method, face current and line current in the case of delta face and line voltage, power Applications and examples of star and delta connection. Fifthly: Electrical Transformers Sixth: Three-sided alternating current motors.	Power point, Lecture	Tests and reports
17	3	Knowledge and Experimental application	Types of motors, three-phase induction motors, types, uses.	Power point, Lecture	Tests and reports
18	3	Knowledge and Experimental application	The installation of induction motors (three-phase rotor), the principle of the theory of magnetic rotor, the principle of the theory of action of the motors	Power point, Lecture	Tests and reports
19	3	Knowledge and Experimental application	Methods for starting movement in three-phase induction motors.	Power point, Lecture	Tests and reports
20	3	Knowledge and Experimental application	Control and control methods for changing the speed of three-phase induction motors (change of poles ,, change of source voltage, change of oscillation, change of direction of rotation(Seventh: Single-phase AC motors	Power point, Lecture	Tests and reports
21	3	Knowledge and Experimental application	Impact motors are one-sided, their types, their structure, their uses, their reversal of cycles.	Power point, Lecture	Tests and reports
22	3	Knowledge and Experimental application	Single unit impact motors with capacitor starting, their installation, their uses.	Power point, Lecture	Tests and reports
23	3	Knowledge and Experimental application	Bevel-faced single-sided motors installed, their uses.	Power point, Lecture	Tests and reports
24	3	Knowledge and Experimental application	Eighth: Motor protection	Power point, Lecture	Tests and reports
25	3	Knowledge and Experimental application	Fuses, types, fusion factor	Power point, Lecture	Tests and reports
26	3	Knowledge and Experimental application	Circuit breaker, thermal follower against overload	Power point, Lecture	Tests and reports
27	3	Knowledge and Experimental	Ninth - Methods for determining engine faults	Power point, Lecture	Tests and reports

		application	The methods used to determine the faults are the failure of the engine to rotate, the engine is rotating at a speed less than its master speed.		
28	3	Knowledge and Experimental application	Engine overheating while spinning, engine running noisy.	Power point, Lecture	Tests and reports
29	3	Knowledge and Experimental application	How to remedy and repair all the previous malfunctions	Power point, Lecture	Tests and reports
30	3	Knowledge and Experimental application	Control and control circuits used to operate the motors manually and automatically. Tenth - Safety and durability of engines	Power point, Lecture	Tests and reports

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	15. Available in the free section and library of the institute. 16. Available in the free section and library of the institute.
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (Include for example, guest Lectures, internship, field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	40
Maximum number of students	100

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAM 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 program specification.

1. Teaching Institution	Al Dwar Technical Institute
2. University Department/Centre	Mechanical technical department
3. Course title/code	Computer application I DIM16
4. Program(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	compulsory
6. Semester/Year	First year
7. Number of hours tuition (total)	90 hours
8. Date of production/revision of this specification	27/5/2021
9. Aims of the Course	

10. Learning Outcomes, Teaching, Learning and Assessment Method

I- Knowledge and Understanding

A1. Study the engineering properties of materials and amorphous and identify the mechanical properties of metals and alloys.

A2.

A3.

A4.

B. Subject-specific skills

B1. Capability to manage projects

B2. The ability to solve problems on the job site and solve crises in this field

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

C. Thinking Skills

C1. Carry out his duties on the job site with professional motives.

C2.

C3.

C4.

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1. Improve their debating skills

D2. Raise their research perceptions and move the student from education to learning

D3.

D4.

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3	Knowledge and Experimental application	An introduction to computers: their generations, their components: hardware and software (system software and application software).	Theoretical lecture	Tests and reports
2+3+4 +5+6+ 7+8+9 +10+11 +12+ 13+14 +15	3	Knowledge and Experimental application	<p>Windows operating system: the concept of the Windows system, its features and basic requirements, the operation of the system, the components of the main desktop screen, the concept of the icon Icon The method of dealing with mouse activities The importance and components of the Taskbar, the use of Start to enter the programs, the concept of loaded tasks, exit from the system Shut Down Calculator is turned off.</p> <p>*The concept of the window for any program and identifying its main components, dealing with desktop icons such as (My Document; My Computer; Recycle Bin.)</p> <p>*Learn about My Computer in terms of disks, folders and the file and how to deal with creating floppy disks, copying folders and files, dealing with the recycle bin, and how to delete and retrieve files through what is provided by the recycle bin from this aspect.</p> <p>*Take advantage of the Control Panel programs such as the Mouse icon and the control icon in the screen saver and change the appearance of the background of the desktop and the Program in adding and removing programs.</p> <p>*Take advantage of the Run option in executing the programs appropriately, as well as switching to the system signal (Ms-Dos) and dealing with its commands.</p> <p>*Using entertainment programs such as (Window Media player) to play movies.</p> <p>*Take advantage of the</p>	Theoretical lecture	Tests and reports

			<p>additional programs (Accessories) such as the calculator (Calculator.)</p> <p>*Dealing with the drawing program (Paint) in creating, saving and retrieving drawings through the commands it provides.</p> <p>*Dealing with the notes window (Notepad; Wordpad) in writing, saving, retrieving and printing texts, and changing the style and formatting of its printing.</p> <p>* Know how to get help and its various methods.</p>		
16	3	Knowledge and Experimental application	Introduction to AutoCAD Edition (2000) and explanation of the program interface	Power point, Lecture	Tests and reports
17	3	Knowledge and Experimental application	Screen settings (Snap, Limit, Grid, Pan, Zoom, ...)	Power point, Lecture	Tests and reports
18	3	Knowledge and Experimental application	Draw menu	Power point, Lecture	Tests and reports
19	3	Knowledge and Experimental application	Draw menu	Power point, Lecture	Tests and reports
20	3	Knowledge and Experimental application	Modify	Power point, Lecture	Tests and reports
21	3	Knowledge and Experimental application	Modify	Power point, Lecture	Tests and reports
22	3	Knowledge and Experimental application	Object Snap menu	Power point, Lecture	Tests and reports
23	3	Knowledge and Experimental application	Layers.	Power point, Lecture	Tests and reports
24	3	Knowledge and Experimental application	Dimensions.	Power point, Lecture	Tests and reports
25	3	Knowledge and Experimental application	Writing	Power point, Lecture	Tests and reports
26	3	Knowledge and Experimental application	Store files and import and export files from other programs	Power point, Lecture	Tests and reports
27	3	Knowledge and Experimental application	Create (blocks) and import parts from other programs.	Power point, Lecture	Tests and reports
28	3	Knowledge and Experimental application	Drawing a scheme for the department's competence	Power point, Lecture	Tests and reports
29	3	Knowledge and Experimental	Draw a section for that diagram	Power point, Lecture	Tests and reports

		application			
30	3	Knowledge and Experimental application	Printing, duplicating, and outputting files to the plotter printer.	Power point, Lecture	Tests and reports

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	17. Available in the free section and library of the institute. 18. Available in the free section and library of the institute.
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (Include for example, guest Lectures, internship, field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	40
Maximum number of students	100

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAM 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 program specification.

1. Teaching Institution	AI Dwar Technical Institute
2. University Department/Centre	Mechanical technical department
3. Course title/code	Parts Technical DIM21
4. Program(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	compulsory
6. Semester/Year	second year
7. Number of hours tuition (total)	90 hours
8. Date of production/revision of this specification	27/5/2021
9. Aims of the Course	

10. Learning Outcomes, Teaching, Learning and Assessment Method

J- Knowledge and Understanding

A1. Study the engineering properties of materials and amorphous and identify the mechanical properties of metals and alloys.

A2.

A3.

A4.

B. Subject-specific skills

B1. Capability to manage projects

B2. The ability to solve problems on the job site and solve crises in this field

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

C. Thinking Skills

C1. Carry out his duties on the job site with professional motives.

C2.

C3.

C4.

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1. Improve their debating skills

D2. Raise their research perceptions and move the student from education to learning

D3.

D4.

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3	Knowledge and Experimental application	Review of Strength of Materials	Theoretical lecture	Tests and reports
2+3	3	Knowledge and Experimental application	Riveted Joints. Types of Riveted Joints, Design of Riveted Joints, Efficiency of Riveted Joints .	Theoretical lecture	Tests and reports
4+5	3	Knowledge and Experimental application	Welded Joint Types of welding Joints, Design of welding Joints	Power point, Lecture	Tests and reports
6+7	3	Knowledge and Experimental application	Screwed Joints, Design of Bolts for Fastening, Design of Bolts for Power Transition .	Power point, Lecture	Tests and reports
8+9	3	Knowledge and Experimental application	Keyed Joints, Types of Keys, Design of Sunk Key.	Power point, Lecture	Tests and reports
10+11	3	Knowledge and Experimental application	Frictional Clutches, Type of Frictional Clutches, Design of Frictional Clutches.	Power point, Lecture	Tests and reports
12+13	3	Knowledge and Experimental application	Types of Springs, Design of Springs	Power point, Lecture	Tests and reports
14+15	3	Knowledge and Experimental application	Types of Belts, Design of Belts.	Power point, Lecture	Tests and reports
16+17	3	Knowledge and Experimental application	Design of Shafts	Power point, Lecture	Tests and reports
18+19	3	Knowledge and Experimental application	Design of Journal Bearings	Power point, Lecture	Tests and reports
20	3	Knowledge and Experimental application	Selection of Ball Bearings	Power point, Lecture	Tests and reports
21+22	3	Knowledge and Experimental application	Design of Gears by Lewis Equation	Power point, Lecture	Tests and reports
23+24	3	Knowledge and Experimental application	Gears Trains	Power point, Lecture	Tests and reports
25+26	3	Knowledge and Experimental application	Design of Simple Gears Box	Power point, Lecture	Tests and reports
27+28	3	Knowledge and Experimental application	Worm Gears	Power point, Lecture	Tests and reports
29+30	3	Knowledge and Experimental application	Cams	Power point, Lecture	Tests and reports

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	19. Available in the free section and library of the institute. 20. Available in the free section and library of the institute.
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (Include for example, guest Lectures, internship, field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	40
Maximum number of students	100

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAM 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 program specification.

1. Teaching Institution	AI Dwar Technical Institute
2. University Department/Centre	Mechanical technical department
3. Course title/code	Manufacturing process II DIM22
4. Program(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	compulsory
6. Semester/Year	Second year
7. Number of hours tuition (total)	120 hours
8. Date of production/revision of this specification	27/5/2021
9. Aims of the Course	

10. Learning Outcomes, Teaching, Learning and Assessment Method

K- Knowledge and Understanding

- A1. Study the engineering properties of materials and amorphous and identify the mechanical properties of metals and alloys.
- A2.
- A3.
- A4.

B. Subject-specific skills

- B1. Capability to manage projects
- B2. The ability to solve problems on the job site and solve crises in this field

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

C. Thinking Skills

- C1. Carry out his duties on the job site with professional motives.
- C2.
- C3.
- C4.

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1. Improve their debating skills

D2. Raise their research perceptions and move the student from education to learning

D3.

D4.

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4	Knowledge and Experimental application	Geometric tolerances, pairings, systems of duplications, orders of tolerances, units of duality, basic deviations,	Theoretical lecture	Tests and reports
2	4	Knowledge and Experimental application	Types of tolerances, punching platform, column platform, codes of duplications, tolerances for loose dimensions, detailed duplications, choice of duplications and their economic advantages.	Theoretical lecture	Tests and reports
3	4	Knowledge and Experimental application	Geometric tolerances in shape and position and types of shape and position tolerances.	Power point, Lecture	Tests and reports
4	4	Knowledge and Experimental application	Measurement parameters, design of measurement parameters, types of measurement parameters (internal measurement parameters, external measurement parameters, adjustable measurement parameters, solid measurement parameters, special measurement parameters).	Power point, Lecture	Tests and reports
5	4	Knowledge and Experimental application	Classification of metalworking, metalworking, an introduction to the theory of reich formation and influencing factors, methods of fixing artifacts, including round and non-round, used cutting edges and longitudinal and transverse feed arrows.	Power point, Lecture	Tests and reports
6	4	Knowledge and Experimental application	Learn about the used pens and how to install them for the crafts, lathing pens.	Power point, Lecture	Tests and reports
7	4	Knowledge and Experimental application	Knowing the types of corners of the lathing pens, the effect of the corners of the lathing pen on the cutting process, the types of metal for the lathing pens, the conditions of cutting, the elements of the pieces, the uses of the cutting speeds, the use of tables and speed maps, the classification of several pieces in relation to the methods of operation and the number of cutting edges.	Power point, Lecture	Tests and reports
8	4	Knowledge and Experimental application	The cutting boundary, the emerging cutoff limit and the theory of its composition, the	Power point, Lecture	Tests and reports

			factors affecting it, the factors that lead to reducing its size, cooling and its importance for cutting operations, various cooling fluids.		
9	4	Knowledge and Experimental application	How to make the operating card for a group of operations and calculate its elements and calculate the cutting time for each process	Power point, Lecture	Tests and reports
10	4	Knowledge and Experimental application	How to take advantage of the sequence card to create a product path through the different units.	Power point, Lecture	Tests and reports
11	4	Knowledge and Experimental application	The factors that affect the selection of the cutting speed (1- the influence of the properties of the cutting tool, 2- the influence of the operating elements, 3- the effect of the properties of the working metal.	Power point, Lecture	Tests and reports
12	4	Knowledge and Experimental application	Automatic turret lathe machines, studying the processes that can be operated and analyzing the processes on the product, how to prepare operating cards.	Power point, Lecture	Tests and reports
13	4	Knowledge and Experimental application	The types of numbers used and their arrangement on the hexagonal head, front and back quadrant.	Power point, Lecture	Tests and reports
14	4	Knowledge and Experimental application	Study how to program automatic programd lathes and the factors affecting operating steps.	Power point, Lecture	Tests and reports
15	4	Knowledge and Experimental application	Milling, identifying the operations that can be performed on milling machines, the parts and components of horizontal and vertical milling machines and the nature of the work of each part.	Power point, Lecture	Tests and reports
16	4	Knowledge and Experimental application	Machine accessories, division heads, tools for connecting artifacts, mandrels, and bushes.	Power point, Lecture	Tests and reports
17	4	Knowledge and Experimental application	Kinds of milling knives (disc and fingerless), gear-brightening knives, angle milling knives.	Power point, Lecture	Tests and reports
18	4	Knowledge and Experimental application	Explanation of the steps of the milling operations, the selection of the appropriate machine, the initial dimensions of the artifacts, the methods of linking the artifacts	Power point, Lecture	Tests and reports
19	4	Knowledge and Experimental application	Milling of different types of gears (just, bevel, helical, worm gears)	Power point, Lecture	Tests and reports

20	4	Knowledge and Experimental application	The way the dovetail dovetail works, the letter V-block interlock.	Power point, Lecture	Tests and reports
21	4	Knowledge and Experimental application	Operating rates, cutting and feeding speeds, and the basis for selecting them for the following different milling operations).	Power point, Lecture	Tests and reports
22	4	Knowledge and Experimental application	Skimming: introducing the types of planers (cart, fluffer, vertical) the operations that take place on the skimming machine, the operating capabilities available for each machine, methods of linking the artifacts.	Power point, Lecture	Tests and reports
23	4	Knowledge and Experimental application	Operating rates such as cutting and feeding speeds, attachments of scrapers such as dividing heads or special devices, angles of scraping pens, types of forces acting on them.	Power point, Lecture	Tests and reports
24	4	Knowledge and Experimental application	Skimming planer, clarification of (cutting stroke, return stroke), connection methods on the skimming planer machine and operating rates, calculating the cutting time for skimming, numbers of the skimming sequence card.	Power point, Lecture	Tests and reports
25	4	Knowledge and Experimental application	Grinding: Introduction to the theory of cutting and the shape of the feather in the grinding process, the grinding stones used (peripheral, facet, lateral, cup, external, internal), their specifications and uses, connecting methods and their balances.	Power point, Lecture	Tests and reports
26	4	Knowledge and Experimental application	Different grinding machines and operating capabilities for each type (internal and external cylindrical grinding machines, number grinding machines).	Power point, Lecture	Tests and reports
27	4	Knowledge and Experimental application	Preparing a comprehensive operating card for all cutting operations.	Power point, Lecture	Tests and reports
28	4	Knowledge and Experimental application	Metal Formation: Formation Theory, Foundations of Hot and Cold Forming, Types of Forming.	Power point, Lecture	Tests and reports
29	4	Knowledge and Experimental application	Rolling: the basics and methods of rolling, the rolled products, the sequence of processes in the rolling mill, the machines used, the conditions for completing the rolling process. Extrusion: Foundations of metal and metal extrusion used, direct	Power point, Lecture	Tests and reports

			extrusion, reverse extrusion, kinds of extrusion products.		
30	4	Knowledge and Experimental application	Shearing and punching: Principles of shearing operations, types of dies and parts thereof, in each case, dimensions of the raw material and methods of selection, calculation of shear strength. (Deep clouds and clouds): the foundations of deep drawing and drawing processes, calculating drag forces and special ratios in each case, types of clouds and their uses.	Power point, Lecture	Tests and reports

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	21. Available in the free section and library of the institute. 22. Available in the free section and library of the institute.
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (Include for example, guest Lectures, internship, field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	40
Maximum number of students	100

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAM 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 program specification.

1. Teaching Institution	AI Dwar Technical Institute
2. University Department/Centre	Mechanical technical department
3. Course title/code	Metallurgy DIM23
4. Program(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	compulsory
6. Semester/Year	First year
7. Number of hours tuition (total)	120 hours
8. Date of production/revision of this specification	27/5/2021
9. Aims of the Course	Study the engineering properties of materials and amorphous and identify the mechanical properties of metals and alloys.

10. Learning Outcomes, Teaching, Learning and Assessment Method

L- Knowledge and Understanding

A1. Study the engineering properties of materials and amorphous and identify the mechanical properties of metals and alloys.

A2.

A3.

A4.

B. Subject-specific skills

B1. Capability to manage projects

B2. The ability to solve problems on the job site and solve crises in this field

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

C. Thinking Skills

C1. Carry out his duties on the job site with professional motives.

C2.

C3.

C4.

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1. Improve their debating skills

D2. Raise their research perceptions and move the student from education to learning

D3.

D4.

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4	Knowledge and Experimental application	Definition of metallurgy, crystallization, dendritic crystallization, the effect of cooling rate on the structure of minerals.	Theoretical lecture	Tests and reports
2	4	Knowledge and Experimental application	Mineral block installation (cast freezing) Common casting defects.	Theoretical lecture	Tests and reports
3	4	Knowledge and Experimental application	Coefficient of atomic crowding, crystalline trends, crystalline levels, and entrainment phenomena.	Power point, Lecture	Tests and reports
4	4	Knowledge and Experimental application	Crystal lattice defects, point, linear.	Power point, Lecture	Tests and reports
5	4	Knowledge and Experimental application	Flexible and plastic forming (sliding, twinning)	Power point, Lecture	Tests and reports
6	4	Knowledge and Experimental application	Effective hardening, cold forming, hot forming.	Power point, Lecture	Tests and reports
7	4	Knowledge and Experimental application	Restoration, recrystallization, crystal growth.	Power point, Lecture	Tests and reports
8	4	Knowledge and Experimental application	Stress curves, strain in bending, tidal, fracture, types of fracture, wandering from ductile fracture to brittle.	Power point, Lecture	Tests and reports
9	4	Knowledge and Experimental application	Fatigue, mechanism of fatigue, factors affecting fatigue limit, fatigue resistance materials.	Power point, Lecture	Tests and reports
10	4	Knowledge and Experimental application	Creep, creep occurrence mechanism, creep-resistant material.	Power point, Lecture	Tests and reports
11	4	Knowledge and Experimental application	Composite, phase, solid solution, order, equilibrium, alloy formation, mechanical mixture, eutectic.	Power point, Lecture	Tests and reports
12	4	Knowledge and Experimental application		Power point, Lecture	Tests and reports
13	4	Knowledge and Experimental application	Thermal equilibrium diagram for fully dissolved dual system in liquid and solid state, Thermal equilibrium diagram for fully dissolved dual system in liquid and insoluble state in solid state (aiotic).	Power point, Lecture	Tests and reports
14	4	Knowledge and Experimental	Thermal equilibrium diagram of a fully soluble binary soluble	Power point, Lecture	Tests and reports

		application	finite system		
15	4	Knowledge and Experimental application	Thermal stability diagram of a fully dissolved dual system in the liquid state, forming a chemical compound upon freezing.	Power point, Lecture	Tests and reports
16	4	Knowledge and Experimental application	Iron, solubility of carbon in iron, thermal equilibrium diagram of iron / carbon system, the most important reactions included in the diagram.	Power point, Lecture	Tests and reports
17	4	Knowledge and Experimental application	Complementary to the Iron / Carbon Thermal Balance Scheme	Power point, Lecture	Tests and reports
18	4	Knowledge and Experimental application	The formation of austenite, the mechanism of conversion of perlite to austenite	Power point, Lecture	Tests and reports
19	4	Knowledge and Experimental application	Austenite shifts are steady degree and cryogenic transformations.	Power point, Lecture	Tests and reports
20	4	Knowledge and Experimental application	Thermal Treatments (Annealing, Equating, Standardization)	Power point, Lecture	Tests and reports
21	4	Knowledge and Experimental application	Complementation of heat treatments (standardization and revision), sub-zero heat treatments, aging.	Power point, Lecture	Tests and reports
22	4	Knowledge and Experimental application	Surface hardening (carbonation of all kinds and the thermal treatments that follow it).	Power point, Lecture	Tests and reports
23	4	Knowledge and Experimental application	Alloy steel, the effect of alloying elements on the properties of steel.	Power point, Lecture	Tests and reports
24	4	Knowledge and Experimental application	Stainless steel, steel to number	Power point, Lecture	Tests and reports
25	4	Knowledge and Experimental application	Cast iron production and heat treatment	Power point, Lecture	Tests and reports
26	4	Knowledge and Experimental application	Supplementing the production of cast iron and its most important types	Power point, Lecture	Tests and reports
27	4	Knowledge and Experimental application	Definition of corrosion, direct and indirect economic costs of corrosion, manifestations of corrosion, mechanism of occurrence of corrosion	Power point, Lecture	Tests and reports
28	4	Knowledge and Experimental application	Negativity, Faraday's law, general erosion, galvanic corrosion, cavernous erosion.	Power point, Lecture	Tests and reports
29	4	Knowledge and Experimental application	Soil Erosion, Facultative Erosion, Intercrystalline Erosion, Stress Erosion	Power point, Lecture	Tests and reports
30	4	Knowledge and Experimental application	Optimum selection of material, ambient relief, design and operation.	Power point, Lecture	Tests and reports

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	23. Available in the free section and library of the institute. 24. Available in the free section and library of the institute.
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (Include for example, guest Lectures, internship, field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	40
Maximum number of students	100

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAM 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 program specification.

1. Teaching Institution	AI Dwar Technical Institute
2. University Department/Centre	Mechanical technical department
3. Course title/code	Workshop II DIM24
4. Program(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	compulsory
6. Semester/Year	Second year
7. Number of hours tuition (total)	240 hours
8. Date of production/revision of this specification	27/5/2021
9. Aims of the Course	

10. Learning Outcomes, Teaching, Learning and Assessment Method

M-Knowledge and Understanding

A1. Study the engineering properties of materials and amorphous and identify the mechanical properties of metals and alloys.

A2.

A3.

A4.

B. Subject-specific skills

B1. Capability to manage projects

B2. The ability to solve problems on the job site and solve crises in this field

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

C. Thinking Skills

C1. Carry out his duties on the job site with professional motives.

C2.

C3.

C4.

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1. Improve their debating skills

D2. Raise their research perceptions and move the student from education to learning

D3.

D4.

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	8	Knowledge and Experimental application	<p>1 -Freezing (5 weeks(</p> <p>1 -Horizontal milling machine, the main university. Explain the parts of the machine and the function of each, the operation of the machines and the selection of speeds and feeds, the tools and devices attached to the machines and their uses and methods of fixing them, the dividing heads, the machines, the rotary tray, the whole milling heads, the rack work head, the sewer working head.</p> <p>2 -Milling cutters: Types (cylindrical surface milling, shoulder milling, sewer work cutters, gear lightening cutters, cylindrical special forming cutters with internal or peripheral hole(The uses of the electrodes, methods of installing them, fixing the artifacts</p> <p>3 -Milling flat surfaces: Selecting and installing the appropriate electronic equipment, adjusting cutting and feeding speeds, how to install the workpieces, the sequence of operations, parts of milling operations to straighten flat, inclined and opposite surfaces and make a group of different channels</p>	Theoretical lecture	Tests and reports
2	8	Knowledge and Experimental application	<p>1 -Partition Headers and Their Uses: Partitioning device and how to use it, simple division, dividing using holes circles, differential division, dividing angles, doing exercises on different types of divisions (dividing parts, dividing angles.(</p> <p>2- Milling of straight gears on general machines and amended serrated newspapers, laws relating to cutting gears, used cutters, service equipment, preparation of the processing and operation of parts of milling</p>	Theoretical lecture	Tests and reports

			operations, review of the final dimensions, training on milling of a fairing arc and a modified serrated sheet.		
3	8	Knowledge and Experimental application	1 -Milling bevel gears on general machines:)The same method of milling gear gears(2 -Milling helical gears and inclined serrated sheets on general machines: (The same platform as the gears milling mechanism)	Power point, Lecture	Tests and reports
4	8	Knowledge and Experimental application	1 -Milling the artifacts with the division of the corners 2 -Dredging the internal sewers. 3- Milling the curves, explaining the general laws of each process, the steps of their implementation, preparing the raw materials, choosing the straws, choosing the operating rates, performing the milling operations, reviewing the dimensions of the works.	Power point, Lecture	Tests and reports
5	8	Knowledge and Experimental application	Milling machine maintenance: 1 -Dismantling and installing the mandrel. 2 -Opening, maintenance and installation of the machine table. 3 -Open the gearbox of the main parts and learn how to change the speed and re-install it. 4 -Open the feed speed box and learn how to change and re-install it. 5 -Carrying out speed change operations through belts and pulleys and identifying how to convert them and the process of tightening them. 6- Identifying the electrical control circuits for the operation of the milling machine.	Power point, Lecture	Tests and reports
6	8	Knowledge and Experimental application	2 -grinding (5 weeks(1 -Grinding machines:)Internal and external cylindrical, eccentric grinding, superficial grinding, number of teeth(2 -Grinding stones: Shapes, types, specifications, use of each, preparation of grinding stones for operation (balance control, stone leveling.(3 -Surface grinding machines: Explain the parts of the machine and its function, the method of	Power point, Lecture	Tests and reports

			<p>operation and the control of the course, the speed of feeding and grafting, methods of fixing the artifacts, the use of coolant fluids and its types.</p> <p>4 -Training on grinding flat, parallel, perpendicular, and oblique surfaces.</p> <p>5- Sewer Grinding: Training on grinding of various sewers and round sewers.</p>		
7	8	Knowledge and Experimental application	<p>Cylindrical grinding: Parts of the machine and how to operate it, adjust operating speeds and rates, test the appropriate stone for the work, install works, use cooling fluids and measuring tools.</p> <p>2- Exercises on external and internal cylindrical grinding.</p>	Power point, Lecture	Tests and reports
8	8	Knowledge and Experimental application	<p>Decentralized grinding and linkage grinding.</p> <p>2- Various grinding operations using previous grinding operations, training on them.</p>	Power point, Lecture	Tests and reports
9	8	Knowledge and Experimental application	<p>Tool sharpening machine: 1 -Operating the number-age machines, how to deal with them, and choosing the appropriate machine for the age of the specific tool.</p> <p>2 -How to install the cutting tool on the machine and determine the required angles for the cutting edge.</p> <p>3- Carrying out tooth operations for models of the number of pieces (single-cut tool, binary categorical, polynomial).</p>	Power point, Lecture	Tests and reports
10	8	Knowledge and Experimental application	<p>Maintenance of grinding machines (general internal and external cylindrical grinding machine)</p> <p>1 -How to change the coolant and determine the required level.</p> <p>2 -Determine the places of lubrication and lubrication of the machine and the appropriate type of oil and grease.</p> <p>3- Carrying out the process of changing the rotational speed transmission belts for the stone and the work.</p>	Power point, Lecture	Tests and reports
11	8	Knowledge and Experimental application	<p>3 -Scraping (5 weeks)</p> <p>1 -Detangling and vertical planers: The difference between the use</p>	Power point, Lecture	Tests and reports

			<p>of each of them, the parts of the machine and the method of work, the works and surfaces that can be operated on each of the pens used, the methods of installing them, the cutting speeds, feeding, grafting rates, and the selection of each of them.</p> <p>2 -Exercises for skimming straight and tilted surfaces at different angles.</p> <p>3- Exercises for making internal and external channels of various shapes.</p>		
12	8	Knowledge and Experimental application	Exercises to plan surfaces and complete parts of the parts, V-block, punched bases.	Power point, Lecture	Tests and reports
13	8	Knowledge and Experimental application	Drills on arcs scraping, sewer work on circular crafts using splitters on planers.	Power point, Lecture	Tests and reports
14	8	Knowledge and Experimental application	Various skimming exercises.	Power point, Lecture	Tests and reports
15	8	Knowledge and Experimental application	<p>Maintenance of the scraping machine:</p> <p>1 -Maintenance of the cart skimming machine.</p> <p>2 -Opening the alligator and maintenance parts for the control parts on the length of the stroke, as well as changing the location of the stroke.</p> <p>3- Parts of various lubrication and lubrication operations and opening the oil pump.</p>	Power point, Lecture	Tests and reports
16	8	Knowledge and Experimental application	<p>Lathing (5 weeks)</p> <p>1 -Decentralized turning and turning using the quadrilateral eyelet and the methods of fixing the special works.</p> <p>2- Exercises on various decentralized artifacts.</p>	Power point, Lecture	Tests and reports
17	8	Knowledge and Experimental application	<p>1. Lathing of external and internal rotations and molding lathing.</p> <p>2- Exercises for various turning operations with the use of shaping pens.</p>	Power point, Lecture	Tests and reports
18	8	Knowledge and Experimental application	<p>Tower lathes:</p> <p>1 -General idea of tower lathes and the use of speed and feeding tables.</p> <p>2- Follow up the operations of different products and prepare the sequence of their operations.</p>	Power point, Lecture	Tests and reports
19	8	Knowledge and	1 -The pens, the number used,	Power point,	Tests and

		Experimental application	the method of controlling them, and the preparation for making various artifacts. 2- How to prepare process tracking maps.	Lecture	reports
20	8	Knowledge and Experimental application	Lathe maintenance: 1 -Dismantling and maintaining the triple and quadruple samples. 2 -Dismantling the moving crow and performing maintenance. 3 -Dismantling the small and large plotter and conducting its maintenance. 4- Maintaining the main cutting speed box and calculating the feeding speed.	Power point, Lecture	Tests and reports
21	8	Knowledge and Experimental application	Machines programd using G-Code 1 -A brief history of CNC machines, the differences between ordinary machines and CNC machines, and the stages of work on the programd machines. 2- Defining the parts of the machine, the axes of movement, the control panel, defining and operating the machine in practice.	Power point, Lecture	Tests and reports
22	8	Knowledge and Experimental application	1 -Program, program structure, how to program milling machines, functions used in programd machines, machine zero-point, movement levels functions.)G17, G18, G19) Movement coordinate functions (G90, G91. 2 -Simulation using simulation programs, how to use the program, instructions for the program. 3- The control panel of the CNC machine according to the ISO9001 system, carrying out movements by the manual control device, the machine zeroing, the triangle machine zeroing, the zeroing of the work piece, methods of fixing the work piece.	Power point, Lecture	Tests and reports
23	8	Knowledge and Experimental application	1 -Linear motion functions (G1, G2), zero segment point storage functions (reference points(,51)G52, G53, G54, G55, G56, G57, G58, G59), auxiliary	Power point, Lecture	Tests and reports

			<p>functions F, M, S, T</p> <p>2 -Implementing a face milling program using the above instructions and applying it to the calculator using simulation programs and practically implementing it on the machine.</p> <p>3- G2, G3 rotary motion functions, repetition function, mirror image formation function.</p>		
24	8	Knowledge and Experimental application	<p>-1Create a program to implement a circular cut (quarter circle, half circle, full circle) and apply it to the calculator using simulation programs and implement it practically on the machine.</p> <p>-2Radius compensation functions (calibration functions) G40, G41, G42, G43, G44</p> <p>-3Creating a program to carry out two exercises, one of which is prominent and the other is drilling, and applying it to the calculator using simulation programs, and implementing it on the machine using the above functions.</p>	Power point, Lecture	Tests and reports
25	8	Knowledge and Experimental application	<p>-1Fixed functions, single-stage perforation function, phase perforating function, dental operation function, hole expansion function, threaded loop function, longitudinal slit operating function, circular drilling operation function.</p> <p>-2Implementing a program using the previous functions and applying it to the calculator using simulation programs and implementing it on the machine.</p> <p>-3Maintenance of the machine How to replace the spare parts, check the lubrication system in the machine and lubricate the spindle, check the cooling system and replace the coolant.</p>	Power point, Lecture	Tests and reports
26	8	Knowledge and Experimental application	<p>Vocabulary of the programd machine workshop that operates with the CAD-CAM system</p> <p>1 -Introducing students to the programd machines, their accessories, and the attached</p>	Power point, Lecture	Tests and reports

			<p>programs.</p> <p>2 -Identify the parts of the programd lathing machine. Control panel keys and the function of each of them, the number of pieces, the machine axes.</p> <p>3- Using the CAD-CAM program to design an engineering product and implement the product on the simulation calculator.</p>		
27	8	Knowledge and Experimental application	<p>Learn how to infer the damaged number or define a new kit.</p> <p>Implementation of an integrated product on the machine, starting from the design stage on the CAD/CAM program, through the simulation process, and ending with the implementation of the product on the machine.</p>	Power point, Lecture	Tests and reports
28	8	Knowledge and Experimental application	<p>1 -Learning about the parts of the programd milling machine: the control panel keys and their function, the number of pieces, the machine axes.</p> <p>2- Using the CAD / CAM program to design an engineering product and implement the product on the simulation calculator.</p>	Power point, Lecture	Tests and reports
29	8	Knowledge and Experimental application	<p>1 -Know how to replace the damaged number or define a new number.</p> <p>2- Implementation of an integrated product on the machine, starting from the design stage on the CAD/CAM program, passing through the simulation process, and ending with the implementation of the product on the machine.</p>	Power point, Lecture	Tests and reports
30	8	Knowledge and Experimental application	Executing many exercises on turning and milling machines	Power point, Lecture	Tests and reports

12. Infrastructure

Required reading:

- CORE TEXTS
- COURSE MATERIALS
- OTHER

25.Available in the free section and library of the institute.

26.Available in the free section and library of the institute.

Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (Include for example, guest Lectures, internship, field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	40
Maximum number of students	100

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAM 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 program specification.

1. Teaching Institution	AI Dwar Technical Institute
2. University Department/Centre	Mechanical technical department
3. Course title/code	Project DIM25
4. Program(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	compulsory
6. Semester/Year	Second year
7. Number of hours tuition (total)	120 hours
8. Date of production/revision of this specification	27/5/2021
9. Aims of the Course	

10. Learning Outcomes, Teaching, Learning and Assessment Method

N- Knowledge and Understanding

A1. Study the engineering properties of materials and amorphous and identify the mechanical properties of metals and alloys.

A2.

A3.

A4.

B. Subject-specific skills

B1. Capability to manage projects

B2. The ability to solve problems on the job site and solve crises in this field

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

C. Thinking Skills

C1. Carry out his duties on the job site with professional motives.

C2.

C3.

C4.

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4	Knowledge and Experimental application	Discuss the projects that are tested and determine the method and plan of action.	Theoretical lecture	Tests and reports
2	4	Knowledge and Experimental application	Defining and allocating responsibilities and setting a schedule for implementing the project.	Theoretical lecture	Tests and reports
3	4	Knowledge and Experimental application	Preparing drawings and operating cards for the various mechanics laboratories of the project parts.	Power point, Lecture	Tests and reports
4-14	4	Knowledge and Experimental application	Implementation of the project in the laboratories units and preparing reports for the stages that have been reached with the weekly follow-up of the workflow of production rates and operating obstacles.	Power point, Lecture	Tests and reports
15	4	Knowledge and Experimental application	Discussing students with a committee and evaluating implementation plans for the better (and it is considered evaluated at the end of the first semester).	Power point, Lecture	Tests and reports
16-27	4	Knowledge and Experimental application	Resumption of the implementation of the project paragraphs and completion of the practical side	Power point, Lecture	Tests and reports
28	4	Knowledge and Experimental application	Discussing the project details and directing students to prepare the final report (the second semester evaluation is considered).	Power point, Lecture	Tests and reports
29	4	Knowledge and Experimental application	Completion of the project, with both theoretical and practical aspects, and preparation for final discussion	Power point, Lecture	Tests and reports
30	4	Knowledge and Experimental application	Final discussion of the project	Power point, Lecture	Tests and reports

12. Infrastructure

Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	27. Available in the free section and library of the institute. 28. Available in the free section and library of the institute.
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (Include for example, guest Lectures, internship, field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	40
Maximum number of students	100

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAM 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 program specification.

1. Teaching Institution	Al Dwar Technical Institute
2. University Department/Centre	Mechanical technical department
3. Course title/code	Industrial Drawing DIM27
4. Program(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	compulsory
6. Semester/Year	Second year
7. Number of hours tuition (total)	90 hours
8. Date of production/revision of this specification	27/5/2021
9. Aims of the Course	

10. Learning Outcomes, Teaching, Learning and Assessment Method

O- Knowledge and Understanding

A1. Study the engineering properties of materials and amorphous and identify the mechanical properties of metals and alloys.

A2.

A3.

A4.

B. Subject-specific skills

B1. Capability to manage projects

B2. The ability to solve problems on the job site and solve crises in this field

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

C. Thinking Skills

C1. Carry out his duties on the job site with professional motives.

C2.

C3.

C4.

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1. Improve their debating skills

D2. Raise their research perceptions and move the student from education to learning

D3.

D4.

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3	Knowledge and Experimental application	A general review of first grade topics, geometric lines, projections, sections, and dimensioning using AutoCAD.	Theoretical lecture	Tests and reports
2-3	3	Knowledge and Experimental application	Methods for fastening using screw, types of screw, types of nuts, with painting.	Theoretical lecture	Tests and reports
4-5	3	Knowledge and Experimental application	Connecting by switches, types, uses, drawing of an assembly plate.	Power point, Lecture	Tests and reports
6-7	3	Knowledge and Experimental application	Welding splicing, welding symbols, assembly plate drawing with welding symbols.	Power point, Lecture	Tests and reports
8-9	3	Knowledge and Experimental application	Rivet fastening, shapes of rivets, types of rivet fastening, assembly plate drawing.	Power point, Lecture	Tests and reports
10	3	Knowledge and Experimental application	Applied panel for mechanical hoist splitting and assembly.	Power point, Lecture	Tests and reports
11	3	Knowledge and Experimental application	Springs, types, uses, drawing of a compression spring.	Power point, Lecture	Tests and reports
12	3	Knowledge and Experimental application	Drawing application plate for exhaust valve segmentation and assembly.	Power point, Lecture	Tests and reports
13	3	Knowledge and Experimental application	Column connections (couplings) of all kinds, drawing an applied panel.	Power point, Lecture	Tests and reports
14	3	Knowledge and Experimental application	Clutches, their types and uses, with an application drawing.	Power point, Lecture	Tests and reports
15	3	Knowledge and Experimental application	Bearings, drawing of an assembly plate for a friction bearing chair.	Power point, Lecture	Tests and reports
16	3	Knowledge and Experimental application	Pulleys and belts, their types and uses, with two paintings drawn to assemble parts that contain different types of belt wheels.	Power point, Lecture	Tests and reports
17-18	3	Knowledge and Experimental application	Gears, types, adjustable gears, basic definitions, drawing of a fair gear with an assembly plate to engage a fair gear.	Power point, Lecture	Tests and reports
19-20	3	Knowledge and Experimental application	The bevel gears, with an assembly drawing of the bevel gear interlock.	Power point, Lecture	Tests and reports
21-22	3	Knowledge and Experimental application	Introduction to Autodesk Inventor	Power point, Lecture	Tests and reports
23	3	Knowledge and	2D drawing environment	Power point,	Tests and

		Experimental application		Lecture	reports
24-25	3	Knowledge and Experimental application	Collection environment	Power point, Lecture	Tests and reports
26-27	3	Knowledge and Experimental application	Dynamic and motion analysis environment	Power point, Lecture	Tests and reports
28	3	Knowledge and Experimental application	Additions to fees	Power point, Lecture	Tests and reports
29-30	3	Knowledge and Experimental application	A project with the competence of the concerned department for a part of any operational system.	Power point, Lecture	Tests and reports

12. Infrastructure

Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	29. Available in the free section and library of the institute. 30. Available in the free section and library of the institute.
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (Include for example, guest Lectures, internship, field studies)	

13. Admissions

Pre-requisites	
Minimum number of students	40
Maximum number of students	100

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAM 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 program specification.

1. Teaching Institution	Al Dwar Technical Institute
2. University Department/Centre	Mechanical technical department
3. Course title/code	Management and safety DIM28
4. Program(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	compulsory
6. Semester/Year	Second year
7. Number of hours tuition (total)	60 hours
8. Date of production/revision of this specification	27/5/2021
9. Aims of the Course	

10. Learning Outcomes, Teaching, Learning and Assessment Method

P- Knowledge and Understanding

A1. Study the engineering properties of materials and amorphous and identify the mechanical properties of metals and alloys.

A2.

A3.

A4.

B. Subject-specific skills

B1. Capability to manage projects

B2. The ability to solve problems on the job site and solve crises in this field

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

C. Thinking Skills

C1. Carry out his duties on the job site with professional motives.

C2.

C3.

C4.

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1. Improve their debating skills

D2. Raise their research perceptions and move the student from education to learning

D3.

D4.

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2	Knowledge and Experimental application	Management: management and its development, stages of management development, basic principles of management, characteristics of management, levels of management.	Theoretical lecture	Tests and reports
2	2	Knowledge and Experimental application	Administration: administrative functions, industrial management, its functions, industrial engineering, characteristics of industrial management.	Theoretical lecture	Tests and reports
3	2	Knowledge and Experimental application	Industrial unit arrangement: The location and arrangement of the industrial unit -The main factors affecting the selection of industrial project sites. -The arrangement of the industrial unit (the initial arrangement of the factory.(Classification of the types of industrial unit arrangements. - Advantages and limitations and the cases in which it is applied (commodity, functional, mixed, joint arrangement).	Power point, Lecture	Tests and reports
4	2	Knowledge and Experimental application	Feasibility study for industrial projects: An idea for a feasibility study for industrial projects. Industrial project Stages of feasibility studies The importance of feasibility studies.	Power point, Lecture	Tests and reports
5	2	Knowledge and Experimental application	Production planning: Production planning, the concept of production planning, objectives of production planning and control	Power point, Lecture	Tests and reports
6	2	Knowledge and Experimental application	Production planning: Types of production, production planning methods, linear programming methods, graphic method and transfer method.	Power point, Lecture	Tests and reports
7	2	Knowledge and Experimental application	Discussing progress reports by students with a test.	Power point, Lecture	Tests and reports
8	2	Knowledge and Experimental application	Study work and standard time: Work study, work study methods, method study, time study, work measurement.	Power point, Lecture	Tests and reports

9	2	Knowledge and Experimental application	Maintenance: Maintenance, the importance of maintenance, the concept of the technological system	Power point, Lecture	Tests and reports
10	2	Knowledge and Experimental application	Maintenance: Types of maintenance	Power point, Lecture	Tests and reports
11	2	Knowledge and Experimental application	Training: Training, training concept, importance of training, training methods.	Power point, Lecture	Tests and reports
12	2	Knowledge and Experimental application	Industrial costs and wages: Costs, classification of costs, wages.	Power point, Lecture	Tests and reports
13	2	Knowledge and Experimental application	Industrial costs and wages: Wage's calculation methods, incentives, types of incentives	Power point, Lecture	Tests and reports
14	2	Knowledge and Experimental application	purchase management: Purchases, procurement steps, inventory, types of stored materials and methods of controlling them.	Power point, Lecture	Tests and reports
15	2	Knowledge and Experimental application	Industrial safety: Industrial safety, accident, types of accidents, road accidents, protective equipment, and their types.	Power point, Lecture	Tests and reports
16	2	Knowledge and Experimental application	Quality Control: The meaning of discipline, the meaning of quality.	Power point, Lecture	Tests and reports
17	2	Knowledge and Experimental application	Quality Control: Definition of quality, quality specifications, factors controlling quality, development and improvement of quality, design, quality of conformity, international and Iraqi standards	Power point, Lecture	Tests and reports
18	2	Knowledge and Experimental application	Quality control methods and sample inspection plans: Quality control methods, inspection and inspection methods, quality control steps, sampling methods, sample inspection schedule.	Power point, Lecture	Tests and reports
19	2	Knowledge and Experimental application	Quality control methods and sample inspection plans: Operating characteristic curve, design quality, data collection (types and analysis)	Power point, Lecture	Tests and reports
20	2	Knowledge and Experimental application	Control schemes	Power point, Lecture	Tests and reports
21	2	Knowledge and Experimental application	Control Charts: Center outline preparation and use.	Power point, Lecture	Tests and reports

			Pareto chart preparation and use.		
22	2	Knowledge and Experimental application	Control Charts: Prepare a chart with standard deviation Defect diagram preparation	Power point, Lecture	Tests and reports
23	2	Knowledge and Experimental application	Control Charts: Scatter diagram. A method for preparing a scatter plot.	Power point, Lecture	Tests and reports
24	2	Knowledge and Experimental application	Control Charts: Quality control charts for standard deviation and percentage of defective units. Histogram (set it up and used(	Power point, Lecture	Tests and reports
25	2	Knowledge and Experimental application	Types of control schemes: Control charts for variables (X-chart(	Power point, Lecture	Tests and reports
26	2	Knowledge and Experimental application	Types of control schemes: Control charts for variables (R-range control chart and-standard deviation control chart).	Power point, Lecture	Tests and reports
27	2	Knowledge and Experimental application	Types of control schemes: Features Control Charts (P-chart.(	Power point, Lecture	Tests and reports
28	2	Knowledge and Experimental application	Types of control schemes: Features control charts (Control chart the number of defects in a single singular C-Chart).	Power point, Lecture	Tests and reports
29	2	Knowledge and Experimental application	Types of control schemes: Characteristics control charts (control chart for the average number of defects in the U-chart vocabulary).	Power point, Lecture	Tests and reports
30	2	Knowledge and Experimental application	Discussing progress reports by students with a test.	Power point, Lecture	Tests and reports

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	31.Available in the free section and library of the institute. 32.Available in the free section and library of the institute.
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (Include for example, guest Lectures, internship, field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	40
Maximum number of students	100

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAM 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 program specification.

1. Teaching Institution	AI Dwar Technical Institute
2. University Department/Centre	Mechanical technical department
3. Course title/code	Computer application II DIM26
4. Program(s) to which it contributes	Seminar, Website, Internet
5. Modes of Attendance offered	compulsory
6. Semester/Year	Second year
7. Number of hours tuition (total)	90 hours
8. Date of production/revision of this specification	27/5/2021
9. Aims of the Course	

10. Learning Outcomes, Teaching, Learning and Assessment Method

Q- Knowledge and Understanding

A1. Study the engineering properties of materials and amorphous and identify the mechanical properties of metals and alloys.

A2.

A3.

A4.

B. Subject-specific skills

B1. Capability to manage projects

B2. The ability to solve problems on the job site and solve crises in this field

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

C. Thinking Skills

C1. Carry out his duties on the job site with professional motives.

C2.

C3.

C4.

Teaching and Learning Methods

Power point, Seminar, Discussion, Lecture, Test

((Theoretical lectures / practical lectures / workshop / example solution / graduation project / summer training))

Assessment methods

Quizzes; Midterm exam. And final exam.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1. Improve their debating skills

D2. Raise their research perceptions and move the student from education to learning

D3.

D4.

11. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3	Knowledge and Experimental application	Introduction to the AutoCAD program, Screen settings (Snap, Limit, Grid, Pan, Zoom, ...)	Theoretical lecture	Tests and reports
2-3-4	3	Knowledge and Experimental application	Draw List.	Theoretical lecture	Tests and reports
5-6	3	Knowledge and Experimental application	Modify list	Power point, Lecture	Tests and reports
7	3	Knowledge and Experimental application	Object Snap menu	Power point, Lecture	Tests and reports
8	3	Knowledge and Experimental application	Layers	Power point, Lecture	Tests and reports
9	3	Knowledge and Experimental application	Dimensions	Power point, Lecture	Tests and reports
10	3	Knowledge and Experimental application	Writing, Hatching	Power point, Lecture	Tests and reports
11	3	Knowledge and Experimental application	Store files and import and export files from other programs.	Power point, Lecture	Tests and reports
12	3	Knowledge and Experimental application	Making (Blocks) and importing parts from other programs such as: Dividing an element with equal distances (Divide), distributing elements along a path (Measure).	Power point, Lecture	Tests and reports
13-14	3	Knowledge and Experimental application	Drawing applications on the computer according to the specialization of the department.	Power point, Lecture	Tests and reports
15	3	Knowledge and Experimental application	Printing, cloning and output files to the plotter printer.	Power point, Lecture	Tests and reports
16	3	Knowledge and Experimental application	Three-dimensional drawing principles.	Power point, Lecture	Tests and reports
17-20	3	Knowledge and Experimental application	Surface (Surface Triangular Sketch) menu.	Power point, Lecture	Tests and reports
21-23	3	Knowledge and Experimental application	Solid's list.	Power point, Lecture	Tests and reports
24-26	3	Knowledge and Experimental application	Slice - Revolve - Extra command applications	Power point, Lecture	Tests and reports

27-28	3	Knowledge and Experimental application	Solid Editing drawing revisions	Power point, Lecture	Tests and reports
29-30	3	Knowledge and Experimental application	Drawing an applied example in the jurisdiction of the department.	Power point, Lecture	Tests and reports

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	33. Available in the free section and library of the institute. 34. Available in the free section and library of the institute.
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (Include for example, guest Lectures, internship, field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	40
Maximum number of students	100