Course Description of English Language

1. Course Name:
English Language
2. Course Code:
(NTU 200)
3. Semester / Year:
Curriculum (15 weeks)\ second level
4. Description Preparation Date:
6/7/2025
5. Available Attendance Forms:
Weekly Lecture Schedules (Theory and Practical), Discussions, Seminars, and Assignments
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours per week (30 hours).
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Hussein Ali Ahmed Email: hussein.aa@ntu.edu.iq
8. Course Objectives

Course Objectives	Teaching the student how to use English grammar in conversation.

9. Teaching and Learning Strategies

Strategy	((Theoretical lectures / discussion and dialogue / practical lectures / field visits / seminars / laboratories / office activities / example solutions / graduation project / summer training))

10. Course Structure

Week	**Hours**	**Required Learning**	**Unit or subject name**	**Learning method**	**Evaluation method**

		Outcomes			
1	2	Questions words	Unit one :getting to know you tenses Questions words	**Theoretical lectures**	Daily tests
۲	2	Present simple	Unit two :the way we live Present tenses Present simple Present continuous Have /have got	**Theoretical lectures**	Daily tests
۳	2	Past simple	Unit three: it all went wrong Past tenses Past simple Past Continuous	**Theoretical lectures**	Daily tests
٤	2	Some and any	Unit four :let's go shopping Quantity Much and many Some and any Something ,anyone, nobody very where A few, a little, a lot of Articles	**Theoretical lectures**	Daily tests

٥	2	do Past tenses	Init five ,wtat ao You want to do Past tenses Verb patterns'\ Future intentions Going to and will	**Theoretical lectures**	Daily tests
٦	2	comparative and superlative Adjectives	Unit six: tell me! What's like? What's it Iike? comparative and superlative Adjectives	**Theoretical lectures**	Daily tests
٧	٢	For and since Tense Revision	Unit seven :fame Present Perfect and For and since Tense revision	**Theoretical lectures**	Daily tests
٨	٢	do's and don'ts	Fn'rt eight: do's and don' Have(got) to Shou ld mu	**Theoretical lectures**	Daily tests
٩	٢	what if ?	Unit nine: going Places Time and conditional clauses what if ?	**Theoretical lectures**	Daily tests
١٠	٢	Verbs Patterns infinitives	Unit ten: scared to death Verbs Patterns infinitives What ,etc.+in fin active Something,etc.+infiniti ve	**Theoretical lectures**	Daily tests

١١	٢	world passives	Unit eleven: Things that changed the world passiv	Theoretical practical	Daily tests
١٢	٢	conditional might	Get :dreams and reality Second conditional Might	Theoretical practical	Daily tests
١٣	٢	Present Perfect continuous	Learning a living Presen Perfect continuous Prese Perfect simple versus Continuou	Theoretical practical	Daily tests
١٤	٢	perfect and past perfect and clarification	Unit fourteen: family tie Present perfect and past perfect and clarification Reported statement	Theoretical practical	Daily tests
١٥	٢		Unit fifteen : revision	Theoretical practical	Daily tests

11.Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 40 % and final mark 60% summation at last to get the final mark

12.Learning and Teaching Resources

Required textbooks (curricular books, any)	are available in the department and the insti library free of charge
Main references (sources)	are available in the free section and the institute library.
Recommended books and references (scientific journals, reports...)	The Internet, library of department institute
Electronic References, Websites	The Internet web sites

Course Description of Computer

1. Course Name:
Computer
2. Course Code:
(NTU 201)
3. Semester / Year:
Curriculum (15 weeks)\ second Level.
4. Description Preparation Date:
6/7/2025
5. Available Attendance Forms:
Weekly Lecture Schedules (Theory and Practical), Discussions, Seminars, a Assignments
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours per week (30 hours).
7. Course administrator's name (mention all, if more than one name)
Name: Email:
8. Course Objectives

Course Objectives	Familiarize the student with various compu applications and be able to distinguish between types of software that can be handled, and iden artificial intelligence and the prospects of dealing w it and how to benefit from it in all areas of life.
9. Teaching and Learning Strategies	
Strategy	((Theoretical lectures / discussion and dialogue / practical lecture field visits / seminars / laboratories / office activities / exam solutions / graduation project / summer training))

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	2	Introduction to artificial intelligence	Explanation of the lecture with the presence of means of illustration and practical application	**Knowledge and practical application**	Tests and reports
2	2	Artificial intelligence techniques and methods	Explanation of the lecture with the presence of means of illustration and practical application	**Knowledge and practical application**	Daily tests
4	2	Challenges and ethical considerations in artificial intelligence	Explanation of the lecture with the presence of means of illustration and practical application	**Knowledge and practical application**	Daily tests
5	2	Artificial intelligence in smartphones and virtual assistants such as siri / Google assistant	Explanation of the lecture with the presence of means of illustration and practical application	**Knowledge and practical application**	Daily tests+reports
6	2	Applications of artificial intelligence in education, health, finance, transport and marketing	Explanation of the lecture with the presen of means of illustration and practical applicatio	**Knowledge and practical application**	Daily tests
7	2	The impact of artificial intelligence on society	Explanation of the lecture with the presen of means of illustration and practical applicatio	**Knowledge and practical application**	Daily tests
8		Artificial intelligence and international relations	Explanation of the lectur with the presence of mea of illustration and practic application	**Knowledge a practical application**	Tests and repo

9	2	Artificial intelligence and the future of humanity	Explanation of the lecture with the presence of means of illustration and practical application	**Knowledge a practical application**	Tests and reports
10	2	Ethics of artificial intelligence	Explanation of the lectu with the presence of mea of illustration and practi application	**Knowledge a practical application**	Tests and repo
11	2	Artificial intelligence, privacy and surveillance	Viruses / the reason the name / definition ways of spreading t virus / symptoms infection with the virus methods of protection types of virus computer crimes / theft / hackers	**Knowledge a practical application**	Tests and repo
12	2	Modern research and emerging techniques in the field of artificial intelligence	Explanation of t lecture with the presen of means of illustrati and practical applicatio	**Knowledge a practical application**	Tests and repo
13	2	Future outlook	Explanation of the lectu with the presence of mea of illustration and practi application	**Knowledge a practical application**	Tests and repo
14	2	The role of intelligence in smartphones	Explanation of the lectu with the presence of mea of illustration and practi application	**Knowledge a practical application**	Tests and repo
15	2	Future directions in artificial intelligence	Explanation of the lectu with the presence of mea of illustration and practi application	**Knowledge a practical application**	Tests and repo

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 50 % and final mark 50% summation at last to get the final mark

12. Learning and Teaching Resources

Required textbooks (curricular books, any)	are available in the department and institute library free of charge
Main references (sources)	are available in the free section and the institute library.
Recommended books and references (scientific journals, reports...)	The Internet, library of department a institute
Electronic References, Websites	The Internet web sites

Course Description of Arabic Language

1. Course Name:
Arabic Language
2. Course Code:
(NTU 202)
3. Semester / Year:
Curriculum (15 weeks)\ second level.
4. Description Preparation Date:
6/7/2025
5. Available Attendance Forms:
Weekly Lecture Schedules (Theory), Discussions, Seminars, and Assignments
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours per week (30 hours).
7. Course administrator's name (mention all, if more than one name)
Name: Email:
8. Course Objectives

Course Objectives	Advanced use of computer applications in the field of specialization.
9. Teaching and Learning Strategies	
Strategy	((Theoretical lectures / discussion and dialogue / practical lectures / field visits / seminars / laboratories / office activities / example solutions / graduation project / summer training))

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	2	Theoretical and examples	The subject and the predicate	Knowledge and application	Tests and reports
2	2	Theoretical examples	The verb, the subject and the object	Knowledge and pplication	Daily tests
3	2	Theoretical examples	Intransitive and transitive verb	Knowledge and application	Daily tests
4	2	Theoretical examples	Pronouns	Knowledge and application	Daily tests+reports
5	2	Theoretical examples	Original and seconda grammatical signs	Knowledge and application	Daily tests
6	2	Theoretical examples	The five actions	Knowledge and application	Daily tests
7		Theoretical examples	Conjunctions and th meanings	Knowledge a practical application	Tests and repor
8	2	Theoretical examples	The connecting and severing link	Knowledge a practical application	Tests and reports
9+10	2	Theoretical examples	Extra characters	Knowledge a practical application	Tests and repor
11	2	Theoretical examples	Nun and Tanween	Knowledge a practical application	Tests and repor
12	2	Theoretical examples	Administrative discourse	Knowledge	Tests

13+14	2	Theoretical	Administrative discurriculum language	Knowledge	Daily tests
15	2	Theoretical	The most common linguistic errors in official books	Knowledge	Daily tests

11.Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 40 % and final mark 60% summation at last to get the final mark	
12.Learning and Teaching Resources	
Required textbooks (curricular books, any)	are available in the department and the insti library free of charge
Main references (sources)	are available in the free section and the institute library.
Recommended books and references (scientific journals, reports...)	The Internet, library of department institute
Electronic References, Websites	The Internet web sites

Course Description The crimes of the Baath regime in Iraq

1. Course Name:
The crimes of the Baath regime in Iraq
2. Course Code:
(NTU 203)
3. Semester / Year:
Curriculum (15 weeks)\ second level.
4. Description Preparation Date:
٦/7/2025
5. Available Attendance Forms:
Weekly Lecture Schedules (Theory), Discussions, Seminars, and Assignments
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours per week (30 hours).
7. Course administrator's name (mention all, if more than one name)
Name: Email:
8. Course Objectives

Course Objectives	Identifying the crimes of the Baath regime according to the Iraqi Supreme Criminal Court Law of 2005.

9. Teaching and Learning Strategies

Strategy	((Theoretical lectures / discussion and dialogue / practical lectures / fi visits / seminars / laboratories / office activities / example solution graduation project / summer training))

10. Course Structure

Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1	2	Theoretical and examples	The concept of crimes and their types	Knowledge and application	Tests and reports
2	2	Theoretical examples	Definition of crime	Knowledge and pplication	Daily tests
3	2	Theoretical examples	Crime sections, Baath crimes	Knowledge and application	Daily tests
4	2	Theoretical examples	Types of international crimes: Decisions issued by the Supreme Criminal Court	Knowledge and application	Daily tests+reports
5	2	Theoretical examples	Psychological and soc crimes and their effects	Knowledge and application	Daily tests
6	2	Theoretical examples	Psychological crimes, mechanisms of psychological crimes, effects of psychological crimes	Knowledge and application	Daily tests

7		Theoretical examples	Social crimes, militarization of society. The Baathist regime is successful in religion	Knowledge a practical application	Tests and repor
8	2	Theoretical examples	Violations of Iraqi laws. Pictures of human rights violations and crimes of power	Knowledge a practical application	Tests and reports
9	2	Theoretical examples	Environmental crimes the Baath regime in Iraq	Knowledge a practical application	Tests and repor
10	2	Theoretical examples	Military and radioact contamination and m explosions	Knowledge a practical application	Tests and repor
11	2	Theoretical examples	Destruction of cities a villages	Knowledge a practical application	Daily Tests
12	2	Theoretical	Drying the marshes.	Knowledge a practical application	Daily tests
13	2	Theoretical examples	Destroying orchards a palm trees	Knowledge a practical application	Daily tests
14	2	Theoretical	Mass grave crimes. The cemeteries of the genocide committed by the Baathist regime in Iraq	Knowledge a practical application	Daily tests
15	2	Chronological classification of genocide Graves	Chronological classification of genocide graves in Iraq for the period from 1963- 2003	Theoretical lectures presentation smart screens	Daily tests

11.Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 40 % and final mark 60% summation at last to get the final mark	
12.Learning and Teaching Resources	
Required textbooks (curricular books, any)	are available in the department and the insti library free of charge
Main references (sources)	are available in the free section and the institute library.
Recommended books and references (scientific journals, reports...)	The Internet, library of department institute
Electronic References, Websites	The Internet web sites

Course Description Professional Ethics

1. Course Name:	
occupational Ethics	
2. Course Code:	
(NTU 204)	
3. Semester / Year:	
Curriculum (15 weeks)\ second level.	
4. Description Preparation Date:	
٦/7/2025	
5. Available Attendance Forms:	
Weekly Lecture Schedules (Theory), Discussions, Seminars, and Assignments	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 hours per week (30 hours).	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Hussein Ali Ahmed Email: hussein.aa@ntu.edu.iq	
8. Course Objectives	
Course Objectives	The student knows professional ethics, its applications in accounting work, and its role in the success of his work and life. The student acquires the skill of analyzing ethical phenomena in the work environment and can

	predict their effects and determine his position on them.

9. Teaching and Learning Strategies

Strategy	((Theoretical lectures / discussion and dialogue / practical lectures / fie visits / seminars / laboratories / office activities / example solutions / graduation project / summer training))

10. Course Structure

Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1+2	2	Moral	Unit (1) – Ethics	Knowledge and application	Tests and reports
3	2	Work and profession	The concept of ethics and its origin.	Knowledge and pplication	Daily tests
4	2	Professional ethics	General rules of ethics.	Knowledge and application	Daily tests
5+6	2	Values and professional ethics	Sources of ethics.	Knowledge and application	Daily tests+reports

7+8	2	Unethical behavior in the profession	Unit (5) - Patterns of unethical behavior in the profession Administrative corruption. o Unethical administrative behavior. o Definition of administrative corruption. Types of administrative corruption.	Knowledge and application	Daily tests
9+10	2	Means and methods of consolidating the values of professional Ethics	The importance of ethics for the individual and society.	Knowledge and application	Daily tests
11+12+13+14+15	2	Professional ethics	Unit (2) – Work and profession	Knowledge and practical application	Tests and reports

11.Course Evaluation
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 40 % and final mark 60% summation at last to get the final mark

12.Learning and Teaching Resources	
Required textbooks (curricular books, any)	are available in the department and institute library free of charge
Main references (sources)	are available in the free section and the institute library.
Recommended books and references (scientific journals, reports...)	The Internet, library of department a institute
Electronic References, Websites	The Internet web sites

Course Description of principals of machines parts

1. Course Name:
principals of machines parts
2. Course Code:
METP210
3. Semester / Year:
Curriculum -second level
4. Description Preparation Date:
6/7/2025
5. Available Attendance Forms:
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours per week (30 hours).
7. Course administrator's name (mention all, if more than one name)
Name: Ass.lec.Noor Abdulateef Ezzat Email: noor.ae@ntu.edu.iq
8. Course Objectives

Course Objectives	**1. Introducing students to the fundamental concepts of mechanical machine parts design.** **2. Equipping students with the skills to analy and design fastening elements such as bolts welds, screws, and shafts.** **3. Enabling students to select appropriate mechanical components for industrial applications.** **4. Preparing students to apply design and safety standards in the machinery industry** **5. Developing students' skills in using softwar tools for mechanical parts design.**

9. Teaching and Learning Strategies

Strategy	(Oral exams / Written exams / Weekly reports / Daily attendanc Midterm and final exams)

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	2	Knowledge and Experiment application	Review of Strength of Materials	Theoretical lecture	Tests and reports
2+3	2	Knowledge and Experiment application	Riveted Joints. Types o Riveted Joints, Design Riveted Joints, Efficiency of Riveted Joints .	Theoretical lecture	Tests and reports
4+5	2	Knowledge and Experiment application	Welded Joint Types of welding Joints, Design welding Joints	Power point, Lecture	Tests and reports
6+7	2	Knowledge and Experiment application	Screwed Joints, Design of Bolts for Fastening, Design of Bolts for Power Transition .	Power point, Lecture	Tests and reports
8+9	2	Knowledge and Experiment application	Keyed Joints, Types of Keys, Design of Sunk Key.	Power point, Lecture	Tests and reports
10+11	2	Knowledge and Experiment application	Frictional Clutches, Ty of Frictional Clutches, Design of Frictional Clutches.	Power point, Lecture	Tests and reports
12+13	2	Knowledge and Experiment application	Types of Springs, Desi of Springs	Power point, Lecture	Tests and reports
14+15	2	Knowledge and Experiment application	Types of Belts, Design Belts.	Power point, Lecture	Tests and reports

11.Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc	
12.Learning and Teaching Resources	
Required textbooks (curricu books, if any)	https://ia801600.us.archive.org/3/items/ machinedesigninte00nort/machinedesigninte00nort.pdf
Main references (sources)	https://ia802706.us.archive.org/33/items/Shigleys MechanicalEngineeringDesign10th/Shigley's%20 Mechanical%20Engineering%20Design%2010th.pdf

Recommended books and references (scientific journals, reports...)	https://archive.org/details/DesignOfMachine\ElementsByM Spotts https://nptel.ac.in/courses/112105124 https://www.engineeringtoolbox.com
Electronic References, Websi	https://ocw.mit.edu/courses/mechanical-engineering/2-72-elements-of-mechanical-design-spring-2009/

Course Description of advanced Machine parts

1. Course Name:	
advanced Machine parts	
2. Course Code:	
METP211	
3. Semester / Year:	
Curriculum–second level	
4. Description Preparation Date:	
6/7/2025	
5. Available Attendance Forms:	
Weekly Lecture Schedules (Theory and Practical), Discussions, Semina and Assignments	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2hours per week (30 hours).	
7. Course administrator's name (mention all, if more than one name)	
Name: Ass.lec.Noor Abdulateef Ezzat Email: noor.ae@ntu.edu.iq	
8. Course Objectives	
Course Objectives	**Understanding the fundamentals of machine design and analyzing their basic components in the mechanica laboratory, along with learning**

	methods and finding appropriate solutions for each mechanical devic according to the given conditions.

9. Teaching and Learning Strategies

Strategy	(Oral exams / Written exams / Weekly reports / Da attendance / Midterm and final exams)

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2	2	Knowledge and Experimental application	Design of Shafts	Power point, Lecture	Tests and reports
3-4	2	Knowledge and Experimental application	Design of Jour Bearings	Power point, Lecture	Tests and reports
5	2	Knowledge and Experimental application	Selection of B Bearings	Power point, Lecture	Tests and reports
6-7	2	Knowledge and Experimental application	Design of Gears Lewis Equation	Power point, Lecture	Tests and reports
8-9	2	Knowledge and Experimental application	Gears Trains	Power point, Lecture	Tests and reports
10-11	2	Knowledge and Experimental application	Design of Sim Gears Box	Power point, Lecture	Tests and reports
12-13	2	Knowledge and Experimental application	Worm Gears	Power point, Lecture	Tests and reports
14-15	2	Knowledge and Experimental application	Cams	Power point, Lecture	Tests and reports

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student : Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 50 % and final mark 50% summation at last to get the final mark it valuated continually.

12. Learning and Teaching Resources	
Required textbooks (curricular books, any)	https://www.coursera.org/
Main references (sources)	https://nptel.ac.in/courses/112105124
Recommended books and references (scientific journals, reports...)	https://www.coursera.org/
Electronic References, Websites	https://ocw.mit.edu/courses/mechanical-engineering/2-72-elements-of-mechanical-design-spring-2009/ https://www.coursera.org/

Course Description of Tolerances engineering

Course Name:
tolerances engineering
Course Code:
METP207
Semester / Year:
Curriculum– second level
Description Preparation Date:
6/7/2025
Available Attendance Forms:
Weekly Lecture Schedules (Theory and Practical), Discussions, Semina and Assignments
Number of Credit Hours (Total) / Number of Units (Total)
4 hours per week (60 hours).
Course administrator's name (mention all, if more than one name)
Name: Dr. Asmaa Muneam Abdullah Email: asmaamuneam@ntu.edu.iq
Course Objectives

Course Objectives	**Understanding the principles and techniqu of manufacturing processes.** **Comprehending material properties and their impact on manufacturing.**

	Mastering basic operations such as cutting, welding, and casting. **Adhering to safety procedures in workshop** **Acquiring technical skills to solve manufacturing problems.** **Keeping up with modern technologi developments in the field.**

Teaching and Learning Strategies	
Strategy	(Oral exams / Written exams / Weekly reports / Daily attendance / Midterm and final exams)

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Knowledge ar Experimental application	Geometric tolerances, pairings, systems of duplications, orders of tolerances, units of duality basic deviations,	Power poin Lecture	Tests and reports
2	4	Knowledge ar Experimental application	Types of tolerances, punching platform, colum platform, codes of duplications, tolerances fc loose dimensions, detailec duplications, choice of duplications and their economic advantages.	Power poin Lecture	Tests and reports
3	4	Knowledge ar Experimental application	Geometric tolerances in shape and position and types of shape and positic tolerances.	Power poin Lecture	Tests and reports
4	4	Knowledge ar Experimental application	Measurement parameters, design of measurement parameters, types of measurement parameters (internal measurement	Power poin Lecture	Tests and reports

			parameters, external measurement parameters, adjustable measurement parameters, solid measurement parameters, special measurement parameters).		
5	4	Knowledge ar Experimental application	Classification of metalworking, metalworking, an introduction to the theory reich formation and influencing factors, metho of fixing artifacts, includi round and non-round, use cutting edges and longitudinal and transvers feed arrows.	Power poin Lecture	Tests and reports
6	4	Knowledge ar Experimental application	Learn about the used pens and how to install them fo the crafts, lathing pens.	Power poin Lecture	Tests and reports
7	4	Knowledge ar Experimental application	Knowing the types of corners of the lathing pen the effect of the corners o the lathing pen on the cutting process, the types metal for the lathing pens the conditions of cutting, the elements of the pieces the uses of the cutting speeds, the use of tables a speed maps, the classification of several pieces in relation to the methods of operation and the number of cutting edg	Power poin Lecture	Tests and reports
8	4	Knowledgean Experimental	The cutting boundary, the emerging cutoff limit and	Power poin Lecture	Tests and reports

		application	the theory of its composition, the factors affecting it, the factors tha lead to reducing its size, cooling and its importanc for cutting operations, various cooling fluids.		
9	4	Knowledge ar Experimental application	How to make the operatin card for a group of operations and calculate i elements and calculate the cutting time for each process	Power poin Lecture	Tests and reports
10	4	Knowledge ar Experimental application	How to take advantage of the sequence card to creat a product path through the different units.	Power poin Lecture	Tests and reports
11	4	Knowledge ar Experimental application	The factors that affect the selection of the cutting speed (1- the influence of the properties of the cuttin tool, 2- the influence of th operating elements, 3- the effect of the properties of the working metal.	Power poin Lecture	Tests and reports
12	4	Knowledge ar Experimental application	Automatic turret lathe machines, studying the processes that can be operated and analyzing th processes on the product, how to prepare operating cards.	Power poin Lecture	Tests and reports
13	4	Knowledge ar Experimental application	The types of numbers use and their arrangement on the hexagonal head, front and back quadrant.	Power poin Lecture	Tests and reports
14			Study how to program automatic programd lathe	Power poin Lecture	Tests and reports

			and the factors affecting operating steps.		
15			Milling, identifying the operations that can be performed on milling machines, the parts and components of horizontal and vertical milling machines and the nature o the work of each part.	Power poin Lecture	Tests and reports

Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc	
13.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Manufacturing Engineering and Technology Kalpakjian & Steven Schmi Mikell P. –Fundamentals of Modern Manufacturing Groover –Manufacturing Processes for Engineering Materials Serope Kalpakjian
Main references (sources)	–Materials and Processes in Manufacturi DeGarmo et al. Muammer Koç –Modern Manufactur
Recommended books and references (scientific journals, reports...)	Journal of Manufacturing Processes (Elsevier) Journal of Materials Processin Technology (Elsevier) CIRP Annals – Manufacturing Technology International Journal of Advanced Manufacturing Technology (Springer) Reports and technical papers from ASTM, SAE, ASME
Electronic References, Websites	**https://ocw.mit.edunptel.ac.in**

Course Description of operation processes

Course Name:
operation processes
Course Code:

METP213
Semester / Year:
Curriculum–(15 weeks)\ second level
Description Preparation Date:
6/7/2025
Available Attendance Forms:
Weekly Lecture Schedules (Theory and Practical), Discussions, Seminars, and Assignments
Number of Credit Hours (Total) / Number of Units (Total)
4 hours per week (60 hours).
Course administrator's name (mention all, if more than one name)
Name: Dr. Asmaa Muneam Abdullah Email: asmaamuneam@ntu.edu.iq
Course Objectives

Course Objectives	**Understanding the principles a techniques of manufacturing processes.** **Comprehending material properties a their impact on manufacturing.** **Mastering basic operations such cutting, welding, and casting.** **Adhering to safety procedures workshops.** **Acquiring technical skills to so manufacturing problems.** **Keeping up with modern technologi developments in the field.**

Teaching and Learning Strategies	
Strategy	(Oral exams / Written exams / Weekly reports / Daily attendanc Midterm and final exams)

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Knowledge and Experimental application	Machine accessories division heads, tools for connecting artifacts, mandrels,	Power point, Lecture	Tests and report

			and bushes.		
2	4	Knowledge and Experimental application	Kinds of milling knives (disc and fingerless), gear-brightening knives, angle milling knives	Power point, Lecture	Tests and report
3	4	Knowledge and Experimental application	Explanation of the steps of the milling operations, the selection of the appropriate machine the initial dimension of the artifacts, the methods of linking t artifacts	Power point, Lecture	Tests and report
4	4	Knowledge and Experimental application	Milling of different types of gears (just, bevel, helical, worm gears)	Power point, Lecture	Tests and report
5	4	Knowledge and Experimental application	Machine accessories division heads, tools for connecting artifacts, mandrels, and bushes.	Power point, Lecture	Tests and report
6	4	Knowledge and Experimental application	The way the dovetai dovetail works, the letter V-block interlock.	Power point, Lecture	Tests and report
7	4	Knowledge and Experimental application	Operating rates, cutting and feeding speeds, and the basi for selecting them fo the following differe milling operations).	Power point, Lecture	Tests and report
8	4	Knowledgeand Experimental application	Skimming: introducing the type of planers (cart, fluffer, vertical) the operations that take place on the skimmi machine, the operati capabilities availabl for each machine, methods of linking t	Power point, Lecture	Tests and report

			artifacts.		
9	4	Knowledge and Experimental application	Operating rates such as cutting and feedi speeds, attachments scrapers such as dividing heads or special devices, ang of scraping pens, typ of forces acting on them.	Power point, Lecture	Tests and report
10	4	Knowledge and Experimental application	Skimming planer, clarification of (cutting stroke, retur stroke), connection methods on the skimming planer machine and operati rates, calculating the cutting time for skimming, numbers the skimming sequence card.	Power point, Lecture	Tests and report
11	4	Knowledge and Experimental application	Grinding: Introducti to the theory of cutti and the shape of the feather in the grindi 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 report
12	4	Knowledge and Experimental application	Different grinding machines and operating capabilitie for each type (intern and external cylindrical grinding machines, number grinding machines).	Power point, Lecture	Tests and report
13	4	Knowledge and	Preparing a	Power point,	Tests and report

		Experimental application	comprehensive operating card for al cutting operations.	Lecture	
14	4	Knowledge and Experimental application	Metal Formation: Formation Theory, Foundations of Hot and Cold Forming, Types of Forming.	Power point, Lecture	Tests and report
15	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 drawin processes, calculatir drag forces and spec ratios in each case, types of clouds and their uses	Power point, Lecture	Tests and report

Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc	
Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Manufacturing Engineering and Technology Kalpakjian & Steven Schmid Mikell P. – Fundamentals of Modern Manufacturing Groover –Manufacturing Processes for Engineering Materials Serope Kalpakjian

Main references (sources)	Materials and Processes in Manufacturing DeGarmo et al. Muammer Koç –Modern Manufactur
Recommended books and references (scientific journals, reports...)	https://nptel.ac.in/courses/112/106/11210628 https://www.freeengineeringbooks.com/ https://bookboon.com/en/mechanical-engineering-ebooks
Electronic References, Websites	https://www.sciencedirect.com

Course Description of crystal metallurgy science

1. Course Name:
crystal metallurgy science
2. Course Code:
METP211
3. Semester / Year:
Curriculum (15 weeks)\ second level
4. Description Preparation Date:
6/7/2025
5. Available Attendance Forms:
Weekly Lecture Schedules (Theory and Practical), Discussions, Seminars, and Assignments
6. Number of Credit Hours (Total) / Number of Units (Total)
4 hours per week (60 hours).
7. Course administrator's name (mention all, if more than one name)
Name: Omar Hassan Mahmoud Email: Eng.omarhasan94@ntu.edu.iq
8. Course Objectives

Course Objectives	Understanding the fundamentals of metallurgy a analyzing its basic components in the metallu laboratory, along with treatment methods a finding appropriate solutions for each me according to the given conditions.
9. Teaching and Learning Strategies	
Strategy	((Theoretical lectures / discussion and dialogue / practical lectu / field visits / seminars / laboratories / office activities / exam

	solutions / graduation project / summer training))

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Knowledge and Experime application	Definition of metallurgy, crystallization, dendritic crystallization, the effect of cooling rate on the structure of minerals.	Theoretical lectures	Daily tests
٢	4	Knowledge and Experimental application	Mineral block installation (cast freezing) Common casting defects.	Theoretical lectures	Daily tests
٣	4	Knowledge and Experimental application	Coefficient of atomic crowding, crystalline trends, crystalline levels, and entrainment phenomena.	Theoretical lectures	Daily tests
٤	4	Knowledge and Experimental application	Crystal lattice defects, point, linear.	Theoretical lectures	Daily tests
٥	4	Knowledge and Experimental application	Flexible and plastic forming (sliding, twinning)	Theoretical lectures	Daily tests
٦	4	Knowledge and Experimental application	Effective hardening, cold forming, hot forming.	Theoretical lectures	Daily tests
٧	4	Knowledge and Experimental application	Restoration, recrystallization, crystal growth.	Theoretical lectures	Daily tests
٨	4	Knowledge and Experimental application	Stress curves, strain in bending, tidal, fracture, types of fracture, wandering from ductile fracture to brittle.	Theoretical lectures	Daily tests

٩	4	Knowledge and Experimental application	Fatigue, mechanism of fatigue, factors affecting fatigue limit, fatigue resistance materials.	Theoretical lectures	Daily tests
١٠	4	Knowledge and Experimental application	Creep, creep occurrence mechanism, creep-resistant material.	Theoretical lectures	Daily tests
١١	4	Knowledge and Experimental application	Composite, phase, solid solution, order, equilibrium, alloy formation, mechanical mixture, eutectic.	Theoretical practical	Daily tests
١٢	4	Knowledge and Experimental application	Thermal equilibrium diagram for fully dissolved dual system in liquid and solid state	Theoretical practical	Daily tests
١٣	4	Knowledge and Experimental application	, Thermal equilibrium diagram for fully dissolv dual system in liquid and insoluble state in solid state (aiotic).	Theoretical practical	Daily tests
١٤	4	Knowledge and Experimental application	Thermal equilibrium diagram of a fully solubl binary soluble finite system	Theoretical practical	Daily tests
١٥	4	Knowledge and Experimental application	Thermal stability diagrar of a fully dissolved dual system in the liquid state forming a chemical compound upon freezing	Theoretical practical	Daily tests

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 40 % and final mark 60% summation at last to get the final mark

12. Learning and Teaching Resources

Required textbooks (curricular books, any)	are available in the department and the institute library free of charge
Main references (sources)	**Metallurgy Book – Part 2: Principles o Metal Casting**

	Translated by: Dr. Salah Al-Din Mohammed Al-Muhanni
Recommended books and references (scientific journals, reports...)	Metal Ignition – Technological Fundamentals
Electronic References, Websites	https://nptel.ac.in/courses/112/106/112106286/ https://www.freeengineeringbooks.com/ https://bookboon.com/en/mechanical-engineering-ebooks

Course Description of Physical metal properties

1. Course Name:
Physical metal properties
2. Course Code:
METP212
3. Semester / Year:
Curriculum (15 weeks)\ second level
4. Description Preparation Date:
6/7/2025
5. Available Attendance Forms:
Weekly Lecture Schedules (Theory and Practical), Discussions, Seminars, and Assignments
6. Number of Credit Hours (Total) / Number of Units (Total)
4 hours per week (60 hours).
7. Course administrator's name (mention all, if more than one name)
Name: Omar Hassan Mahmoud Email: Eng.omarhasan94@ntu.edu.iq
8. Course Objectives

Course Objectives	Understanding advanced metallurgy and analyzing its basic components in the metallurgy laboratory, along with treatment methods and finding appropriate solutions for each metal according to the given conditions, including phase diagrams of common metals and how to draw and analyze metals based on

	their composition ratios

9. Teaching and Learning Strategies

Strategy	((Theoretical lectures / discussion and dialogue / practical lectu / field visits / seminars / laboratories / office activities / exam solutions / graduation project / summer training))

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	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.	Theoretical lectures	Daily tests
۲	4	Knowledge and Experimental application	Complementary to the Iron / Carbon Thermal Balance Scheme	Theoretical lectures	Daily tests
۳	4	Knowledge and Experimental application	The formation of austenite, the mechanism of conversion of perlite to austenite	Theoretical lectures	Daily tests
٤	4	Knowledge and Experimental application	Austenite shifts are steady degree and cryogenic transformations.	Theoretical lectures	Daily tests
٥	4	Knowledge and Experimental application	Thermal Treatments (Annealing, Equation, Standardization)	Theoretical lectures	Daily tests
٦	4	Knowledge and Experimental application	Complementation of hea treatments (standardizati and revision), sub-zero heat treatments, aging.	Theoretical lectures	Daily tests
٧	4	Knowledge and Experimental application	Surface hardening (carbonation of all kinds and the thermal treatmen that follow it).	Theoretical lectures	Daily tests

٨	4	Knowledge and Experimental application	Alloy steel, the effect of alloying elements on the properties of steel.	Theoretical lectures	Daily tests
٩	4	Knowledge and Experimental application	Stainless steel, steel to number	Theoretical lectures	Daily tests
١٠	4	Knowledge and Experimental application	Cast iron production and heat treatment	Theoretical lectures	Daily tests
١١	4	Knowledge and Experimental application	Supplementing the production of cast iron a its most important types	Theoretical + practical	Daily tests
١٢	4	Knowledge and Experimental application	Definition of corrosion, direct and indirect economic costs of corrosion, manifestations of corrosion, mechanism of occurrence of corrosion	Theoretical + practical	Daily tests
١٣	4	Knowledge and Experimental application	Negativity, Faraday's lav general erosion, galvanic corrosion, cavernous erosion.	Theoretical + practical	Daily tests
١٤	4	Knowledge and Experimental application	Soil Erosion, Facultative Erosion, Intercrystalline Erosion, Stress Erosion	Theoretical + practical	Daily tests
١٥	4	Knowledge and Experimental application	Optimum selection of material, ambient relief, design and operation.	Theoretical + practical	Daily tests

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 40 % and final mark 60% summation at last to get the final mark

12. Learning and Teaching Resources

Required textbooks (curricular books, any)	are available in the department and the institute library free of charge
Main references (sources)	are available in the free section and the

	institute library.
Recommended books and references (scientific journals, reports...)	www.sciencedirect.com Mechanical Engineering Magazine (ASME) International Journal of Machine Design and ProductionMachine Design Journ
Electronic References, Websites	**https://nptel.ac.in/courses/112/106/112106286/** **https://www.freeengineeringbooks.com/** **https://bookboon.com/en/mechanical-engineering-ebooks**

Course Description of Primary machine workshops

Course Name:
Primary machine workshops
Weekly Course Schedules (Theory and Laboratory), Discussions, Seminars, and Homewor Assignments
METP 214
Semester / Year:
Curriculum (15 weeks)\ second Level.
Description Preparation Date:
6/7/2025
Available Attendance Forms:
Weekly Lecture Schedules (Theory and Practical), Discussions, Seminars, and Assignments
Number of Credit Hours (Total) / Number of Units (Total)
2 hours per week (30 hours).
Course administrator's name (mention all, if more than one name)
Name: Email:
Course Objectives

Course Objectiv	**Understanding the fundamentals of engineering workshops and machines such as the lathe machine and other machinery, analyzing their basic components and the gearbox, along with explaining occupational safety methods.**

Teaching and Learning Strategies	
Strategy	**((Theoretical lectures / discussion and dialogue / practical lectures / field visits, in workshops of institute , electronic boards, manage electrical projec workshops / seminars / laboratories / office activities / example solutions / graduation project / summer training))**

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Acknowledgment and Practical application	Lathing (5 weeks(1 -Decentralized turning and turning using the quadrilateral eyelet and the methods of fixing the special works. 2- Exercises on various decentralized artifacts.	**Knowledge and practical application**	Tests and reports
2	2	Acknowledgment and Practical application	1. Lathing of external and internal rotations and molding lathing. 2- Exercises for various turning operations with the use of shaping pens.	Knowledge and practical application	Quizzes+ Reports
3	2	Acknowledgment and Practical application	Tower lathes: 1 -General idea of tower lathes and the use of speed and feeding tables. 2- Follow up the operations of different products and prepare the sequence of their operations.	Knowledge and practical application	Daily tests Quizzes+ Reports
4	2	Acknowledgment and Practical application	1 -The pens, the number used, the method of controlling them, and the preparation for making various artifacts. 2- How to prepare process tracking maps.	Knowledge and practical application	Daily tests+reports

5	2	Acknowledg ment and Practical 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 ma cutting speed box a calculating the feeding spee	Knowledge and practical application	Daily tests
6	2	Practical and theoretical	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 t machine, the axes movement, the control par defining and operating t machine in practice.	Knowledge and practical application	Daily tests

7		Practical and theoretical	1 -Program, progra structure, how to progra milling machines, functio used in programd machin machine zero-poi movement levels functions)G17, G18, G19) Moveme coordinate functions (G9 G91.(2 -Simulation usi simulation programs, how use the progra instructions for t program. 3- The control panel of t CNC machine according the ISO9001 syste carrying out movements the manual control devi the machine zeroing, t triangle machine zeroi the zeroing of the wo piece, methods of fixing t work piece.	Knowledge And practi application	Tests and repo

8	2	Practical and theoretical	1 –Linear motion functions (G1, G2), zero segment point storage functions (reference points(,٥١)G52, G53, G54, G55, G56, G57, G58, G59), auxiliary functions F, M, S, T 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. 3- G2, G3 rotary motion functions, repetition function, mirror image formation function.	Knowledge a practical application	Tests and reports
9	2	Practical and theoretical	-Create a program to implement a circular cut (quarter circle, half circle, full circle) and apply it to t calculator using simulatio programs and implement i practically on the machine -٢Radius compensation functions (calibration functions) G40, G41, G42, G43, G44 -٣Creating a program to carry out two exercises, or of which is prominent and the other is drilling, and applying it to the calculato using simulation programs and implementing it on the machine using the above functi	**Knowledge a practical application**	Tests and repo

10	2	Practical and theoretical	-Fixed 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. -٢Implementing a progra using the previous functio and applying it to the calculator using simulatio programs and implementi it on the machine. -٣Maintenance of the machine How to replace th spare parts, check the lubrication system in the machine and lubricate the spindle, check the cooling system and replace the coolan	**Knowledge a practical application**	Tests and repo

11	2	Practical and theoretical	Vocabulary of the programd machine workshop that operates with the CAD-CAM system 1 -Introducing students to the programd machines, their accessories, and the attached programs. 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. 3- Using the CAD-CAM program to design an engineering product and implement the product on the simulation calculator.	**Knowledge a practical application**	Tests and repo
12	2	Practical and theoretical	Learn how to infer t damaged number or defin new kit. Implementation of integrated product on t machine, starting from t design stage on t CAD/CAM program, throu the simulation process, a ending with t implementation of t product on the machine.	**Knowledge a practical application**	Tests and repo

13	2	Practical and theoretical	-Learning about the parts of the programd milling machine: the control panel keys and their function, the number of pieces, the machine axes. 2- Using the CAD / CAM program to design an engineering product and implement the product on the simulation calculator	Knowledge an practical application	Tests and repo
14	2	Practical and theoretical	Know how to replace t damaged number or defin new number. 2- Implementation of integrated product on t machine, starting from t design stage on t CAD/CAM program, passi through the simulati process, and ending with t implementation of t product on the machine.	Knowledge a practical application	Tests and repo
15	2	Practical and theoretical	Executing many exercises on turning and milling machines	**Knowledge a practical application**	Tests and repo

Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 50 % and final mark 50% summation at last to get the final mark it valuated continually.

Learning and Teaching Resources

Required textbooks (curricular books, any)	are available in the department and the institute library free of charge
Main references (sources)	https://www.youtube.com/watch?v=39R3hgjy7jI
Recommended books and references (scientific journals, reports...)	**https://www.scribd.com/document/471190813/Machine-Shop-Lab-Manual** **https://www.slideshare.net/MECHGINES/o**

	peration-sheet
Electronic References, Websites	**https://www.youtube.com/watch?v=zS1KDC_pAp0** **https://www.geographynotes.com/wp-content/uploads/2021/02/Grinding-Machine.pdf**

Course Description Form of Project

Course Name:	
Project	
Weekly Course Schedules (Theory and Laboratory), Discussions, Seminars, and Homewor Assignments	
METP216	
Semester / Year:	
Curriculum (15 weeks)\ second Level.	
Description Preparation Date:	
6/7/2025	
Available Attendance Forms:	
Weekly Lecture Schedules (Theory and Practical), Discussions, Seminars, a Assignments	
Number of Credit Hours (Total) / Number of Units (Total)	
2 hours per week (30 hours).	
Course administrator's name (mention all, if more than one name)	
Name: staff of department lecturers Email:	
Course Objectives	
Course Objectives	To enable the student to apply the theoreti and practical skills acquired during the years study in executing a comprehensive appl project that addresses an engineering problem provides an innovative solution in the field mechanical specialization, while adhering design standards, quality, industrial safety, a documenting the project in a scientific a systematic manner.
Teaching and Learning Strategies	
Strategy	((Theoretical lectures / discussion and dialogue / practical lecture

	field visits, in workshops of institute , electronic boards, manage electr projects workshops / seminars / laboratories / office activities example solutions / graduation project / summer training))

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Acknowledgment and Practical application	Discuss the projects that are tested and determine the method and plan of action.	Knowledge and practical application	Tests and reports
2	2	Acknowledgment and Practical application	Defining and allocating responsibilities and setting a schedule for implementing the project.	Knowledge and practical application	Quizzes+ Reports
3	2	Acknowledgment and Practical application	Preparing drawings and operating cards for the various mechanics laboratories of the project parts.	Knowledge and practical application	Daily tests Quizzes+ Reports
4	2	Acknowledgment and Practical 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.	Knowledge and practical application	Daily tests+reports
5	2	Acknowledgment and Practical 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).	Knowledge and practical application	Daily tests
6+7	2	Practical and theoretical	Resumption of the implementation of the project paragraphs and completion of the practical side	Knowledge and practical application	Daily tests

8+9+10		Practical and theoretical	Discussing the project details and directing students to prepare the final report (the second semester evaluation considered).	Knowledge and practical application	Tests and repor
11+12+13	2	Practical and theoretical	Completion of the project, with both theoretical and practical aspects, and preparation for final discussion	Knowledge and practical application	Tests and reports
14_+15	2	Practical and theoretical	Final discussion of the projec	Knowledge and practical application	Tests and repor

Course Evaluation
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 50 % and final mark 50% summation at last to get the final mark it valuated continually.

Learning and Teaching Resources	
Required textbooks (curricular books, any)	https://learnmech.com/mechanical-engineering-projects/ www.sciencedirect.com
Main references (sources)	**https://mechanicalfarm.com/** **https://www.tinkercad.com/circuit**
Recommended books and references (scientific journals, reports...)	https://learnmech.com/mechanical-engineering-projects/ www.sciencedirect.com
Electronic References, Websites	**https://mechanicalfarm.com/** **https://www.tinkercad.com/circuits**

Course Description of Advanced machine workshops

Course Name:
Advanced machine workshops
Weekly Course Schedules (Theory and Laboratory), Discussions, Seminars, and Homew Assignments
METP 215
Semester / Year:
Curriculum (15 weeks)\ second Level.
Description Preparation Date:
6/7/2025

Available Attendance Forms:
Weekly Lecture Schedules (Theory and Practical), Discussions, Seminars, and Assignments
Number of Credit Hours (Total) / Number of Units (Total)
2 hours per week (30 hours).
Course administrator's name (mention all, if more than one name)
Name: ALL workers in workshops (engineers and others) Email:

Course Objectives	
Course Objectives	Understanding the fundamentals of engineering workshops and machines such as the milling machine, shaping machine, grinding machine, and oth machinery, analyzing their basic components and the gearbox, along with explaining occupational safety methods.

Teaching and Learning Strategies	
Strategy	((Theoretical lectures / discussion and dialogue / practical lectures / field visits, in workshops of institute , electronic boards, manage electrical projects workshops / seminars / laboratories / office activities / example solutions graduation project / summer training))

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	2	Acknowledgment and Practical application	- Freezing (5 weeks) 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.	Knowledge and practical application	Tests and reports
2	2	Acknowledgment and Practical application	-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	Knowledge and practical application	Quizzes+ Reports

3	2	Acknowledgment and Practical application	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	Knowledge and practical application	Daily tests Quizzes+ Reports
4	2	Acknowledgment and Practical application	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.(	Knowledge and practical application	Daily tests+reports
5	2	Acknowledgment and Practical application	Milling of straight gears general machines a amended serrat newspapers, laws relating cutting gears, used cutte service equipme preparation of the processi and operation of parts milling operations, review the final dimensions, traini on milling of a fairing arc a a modified serrated sheet.	Knowledge and practical application	Daily tests

6	2	Practical and theoretical	Milling bevel gears general machines:)The same method of milli gear gears(2 -Milling helical gears a inclined serrated sheets general machines: (The same platform as t gears milling mechanism)	Knowledge and practical application	Daily tests
7		Practical and theoretical	Milling the artifacts with t division of the corners 2 -Dredging the inter sewers. 3- Milling the curv explaining the general la of each process, the steps their implementati preparing the raw materia choosing the strav choosing the operating rat performing the milli operations, reviewing t dimensions of the works.	Knowledge And practi application	Tests and repo
8	2	Practical and theoretical	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.	Knowledge a practical application	Tests and reports

9	2	Practical and theoretical	Carrying out speed change operations through belts ar 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. Exercises to plan surfaces and complete part of the parts, V-block, punched bases	Knowledge a practical application	Tests and repo
10	2	Practical and theoretical	grinding (5 weeks(1 -Grinding machines:)Internal and exter cylindrical, eccent grinding, superficial grindi number of teeth(2 -Grinding stones: Shapes, types, specificatio use of each, preparation grinding stones for operati (balance control, sto leveling	Knowledge a practical application	Tests and repo

11	2	Practical and theoretical	Surface grinding machines: Explain the parts of the machine and its function, the method of 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. 4 -Training on grinding flat, parallel, perpendicular, and oblique surfaces. 5- Sewer Grinding: Training on grinding of various sewers and round sewers.	Knowledge a practical application	Tests and repo
12	2	Practical and theoretical	Cylindrical grinding: Parts of the machine and how to operate it, adjust operating speeds and rates test the appropriate stone f the work, install works, use cooling fluids and measurir tools. 2- Exercises on external an internal cylindrical grindin	Knowledge a practical application	Tests and repo
13	2	Practical and theoretical	Decentralized grinding and linkage grinding. 2- Various grinding operations using previous grinding operations, training on them.	Knowledge a practical application	Tests and repo

14	2	Practical and theoretical	Tool sharpening machine: 1 -Operating the number-a machines, how to deal with them, and choosing the appropriate machine for th age of the specific tool. 2 -How to install the cuttin tool on the machine and determine the required angles for the cutting edge. 3- Carrying out tooth operations for models of th number of pieces (single-cu tool, binary categorical, polynomial.	**Knowledge a practical application**	Tests and repo
15	2	Practical and theoretical	Drills on arcs scraping, sewer work on circular crafts using splitters on planers Various skimming exercises Maintenance of the scraping machine: 1 -Maintenance of the cart skimming machine. 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. 3- Parts of various lubrication and lubrication operations and opening the oil pump	**Knowledge a practical application**	**Tests and reports**

Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 50 % and final mark 50% summation at last to get the final mark it valuated continually.	
Learning and Teaching Resources	
Required textbooks (curricular books, any)	are available in the department and the institute library free of charge

Main references (sources)	are available in the free section and the institute library.
Recommended books and references (scientific journals, reports...)	The Internet, library of department and institute
Electronic References, Websites	The Internet web sites

Course Description of Principals of engineering drawings

Course Name:	
Principals of engineering drawings	
Weekly Course Schedules (Theory and Laboratory), Discussions, Seminars, and Homew Assignments	
METP 218	
Semester / Year:	
Curriculum (15 weeks)\ second Level.	
Description Preparation Date:	
6/7/2025	
Available Attendance Forms:	
Weekly Lecture Schedules (Theory and Practical), Discussions, Seminars, and Assignments	
Number of Credit Hours (Total) / Number of Units (Total)	
2 hours per week (30 hours).	
Course administrator's name (mention all, if more than one name)	
Name: Najm Abdullah Mulan Email: Najmmolan@ntu.edu.iq	
Najmmolan@ntu.edu.iq Course Objectives	
Course Objectives	Understanding the fundamentals of engineering machines and analyzin their basic components in the mechanical laboratory, along with learni methods and finding appropriate solutions for each mechanical device according to the given conditions. Understanding the basic principles of computer-aided engineering drawing. Drawing basic models using this software. Designing and drawing proposed models.
Teaching and Learning Strategies	
Strategy	((Theoretical lectures / discussion and dialogue / practical lecture field visits, in workshops of institute , electronic boards, manage electr projects workshops / seminars / laboratories / office activities example solutions / graduation project / summer training))

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Acknowledgment and Practical application	A general review of first grade topics, geometric lines, projections, sections, and dimensioning using AutoCAD	Knowledge and practical application	Tests and reports
3,2	2	Acknowledgment and Practical application	Methods for fastening using screw, types of screw, types of nuts, with painting.	Knowledge and practical application	Quizzes+ Reports
4,5	2	Acknowledgment and Practical application	Connecting by switches, types, uses, drawing of an assembly plate.	Knowledge and practical application	Daily tests Quizzes+ Reports
6,7	2	Acknowledgment and Practical application	Welding splicing, welding symbols, assembly plate drawing with welding symbols.	Knowledge and practical application	Daily tests+reports
9,8	2	Acknowledgment and Practical application	Rivet fastening, shapes o rivets, types of rivet fastening, assembly plate drawing.	Knowledge and practical application	Daily tests
10	2	Practical and theoretical	Applied panel mechanical hoist splitti and assembly.	Knowledge and practical application	Daily tests
11		Practical and theoretical	Springs, types, us drawing of compression spring	Knowledge And practi application	Tests and repo
12	2	Practical and theoretical	Drawing application plate for exhaust valve segmentation and assembly.	Knowledge a practical application	Tests and reports

13	2	Practical and theoretical	Column connections (couplings) of all kinds, drawing an applied panel.	Knowledge a practical application	Tests and repo
14	2	Practical and theoretical	Clutches, their types and uses, with an application drawing.	Knowledge a practical application	Tests and repo
15	2	Practical and theoretical	Bearings, drawing of an assembly plate for a friction bearing chair.	Knowledge a practical application	Tests and repo

Course Evaluation
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 50 % and final mark 50% summation at last to get the final mark it valuated continually.

Learning and Teaching Resources	
Required textbooks (curricular books, any)	https://www.youtube.com/@FreeCADTips https://www.academia.edu/37967155/AutoCAD_f Mechanical_Engineers
Main references (sources)	are available in the free section and the institute library.
Recommended books and references (scientific journals, reports...)	https://www.youtube.com/@FreeCADTips https://www.academia.edu/37967155/AutoCAD_f Mechanical_Engineers
Electronic References, Websites	https://learn.autodesk.com/ https://www.linkedin.com/learning/autocad-2024-essential-training https://learnmechanical.com/autocad-exercises-pd

Course Description of advanced of engineering drawings

Course Name:
Advanced of engineering drawings
Weekly Course Schedules (Theory and Laboratory), Discussions, Seminars, and Homew Assignments
METP 219

Semester / Year:
Curriculum (15 weeks)\ second Level.
Description Preparation Date:
6/7/2025
Available Attendance Forms:
Weekly Lecture Schedules (Theory and Practical), Discussions, Seminars, and Assignments
Number of Credit Hours (Total) / Number of Units (Total)
2 hours per week (30 hours).
Course administrator's name (mention all, if more than one name)
Name: : Najm Abdullah Mulan Email: Najmmolan@ntu.edu.iq
Course Objectives

Course Objectives	Understanding the fundamentals of engineering machines and analyzing their basic components in the mechanical laboratory, along with learning methods and finding appropriate solutions for each mechanical device according to the given conditions. Understanding the basic principles of computer-aided engineering drawi Drawing basic models using this software. Designing and drawing proposed models.

Teaching and Learning Strategies	
Strategy	((Theoretical lectures / discussion and dialogue / practical lecture field visits, in workshops of institute , electronic boards, manage electr projects workshops / seminars / laboratories / office activities example solutions / graduation project / summer training))

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1,2	2	Acknowledgment and Practical application	Pulleys and belts, their types and uses, with two paintings drawn to assemble parts that contain different types of belt wheels	Knowledge and practical application	Tests and reports

3,4	2	Acknowledgment and Practical application	Gears, types, adjustable gears, basic definitions, drawing of a fair gear with an assembly plate to engage a fair gear.	Knowledge and practical application	Quizzes+ Reports
5	2	Acknowledgment and Practical application	The bevel gears, with an assembly drawing of the bevel gear interlock.	Knowledge and practical application	Daily tests Quizzes+ Reports
6,7	2	Acknowledgment and Practical application	Introduction to Autodesk Inventor	Knowledge and practical application	Daily tests+reports
8,9	2	Acknowledgment and Practical application	2D drawing environme	Knowledge and practical application	Daily tests
10,11	2	Practical and theoretical	Collection environment	Knowledge and practical application	Daily tests
12,13		Practical and theoretical	Dynamic and motion analysis environment	Knowledge And practi application	Tests and repo
14	2	Practical and theoretical	Additions to fees	Knowledge a practical application	Tests and reports
15	2	Practical and theoretical	A project with the competence of the concerned department for a part of any operational system	Knowledge a practical application	Tests and repo

Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 50 % and final mark 50% summation at last to get the final mark it valuated continually.

Learning and Teaching Resources

Required textbooks (curricular books, any)	are available in the department and the institute library free of charge
Main references (sources)	are available in the free section and the institute library.

Recommended books and references (scientific journals, reports...)	https://www.youtube.com/@FreeCADTips https://www.academia.edu/37967155/AutoCAD_f Mechanical_Engineers
Electronic References, Websites	https://learn.autodesk.com/ https://www.linkedin.com/learning/autocad-2024-essential-training https://learnmechanical.com/autocad-exercises-pd

Course Description of industrial management

Course Name:
industrial management
Weekly Course Schedules (Theory and Laboratory), Discussions, Seminars, and Homew Assignments
TUDO204
Semester / Year:
Curriculum (15 weeks)\ second Level.
Description Preparation Date:
6/7/2025
Available Attendance Forms:
Weekly Lecture Schedules (Theory and Practical), Discussions, Seminars, a Assignments
Number of Credit Hours (Total) / Number of Units (Total)
2 hours per week (30 hours).
Course administrator's name (mention all, if more than one name)
Name: Dr. Hussein Ali Ahmed Email: hussein.aa@ntu.edu.iq
Course Objectives

Course Objectives	1. Introduce students to the concepts and fundamentals of industrial management. 2. Enable students to understand planning, organizing, and controlling processes in an industrial environment. 3. Equip students with decision-making skills in production management. 4. Familiarize students with methods for improving efficiency and productivity in factories. 5. Understand the principles and applications of Total Quality Management (TQM).

	6. Prepare students to manage human and financial resources in industrial institutions. 7. Develop students' understanding of the relationship between management and technology in the industrial workplace.

Teaching and Learning Strategies	
Strategy	((Theoretical lectures / discussion and dialogue / practical lectures / field visits, in workshops of institute , electronic boards, manage electrical projects workshops / seminars / laboratories / office activities / example solutions / graduation project / summer training))

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Acknowledgment and Practical application	Quality Control: The meaning of discipline, the meaning of quality.	Knowledge and practical application	Tests and reports
2	2	Acknowledgment and Practical application	Quality Control: Definition of quality, quality specifications, factors controlling quality, development and improvement of quality, design, quality of conformity, international and Iraqi standards	Knowledge and practical application	Quizzes+ Reports
3	2	Acknowledgment and Practical application	Quality control methods and sample inspection plans: Quality control methods, inspection and inspection methods, quality control steps, sampling methods, sample inspection schedule.	Knowledge and practical application	Daily tests Quizzes+ Reports

4	2	Acknowledgment and Practical application	Quality control methods and sample inspection plans: Operating characteristic curve, design quality, data collection (types and analysis)	Knowledge and practical application	Daily tests+reports
5	2	Acknowledgment and Practical application	Control schemes	Knowledge and practical application	Daily tests
6	2	Practical and theoretical	Control Charts: Center outline preparation and use. Pareto chart preparation and use.	Knowledge and practical application	Daily tests
7		Practical and theoretical	Control Charts: Prepare a chart with standard deviation Defect diagram preparation	Knowledge And practical application	Tests and repo
8	2	Practical and theoretical	Control Charts: Scatter diagram. A method for preparing a scatter plot.	Knowledge and practical application	Tests and reports
9	2	Practical and theoretical	Control Charts: Quality control charts for standard deviation and percentage of defective units. Histogram (set it up and used(	Knowledge an practical application	Tests and repo
10	2	Practical and theoretical	Types of control schemes: Control charts for variab (X-chart(	Knowledge an practical application	Tests and repo

11	2	Practical and theoretical	Types of control schemes: Control charts for variables (R-range control chart and-standard deviation control chart).	Knowledge an practical application	Tests and repo
12	2	Practical and theoretical	Types of control schemes: Features Control Charts (P-chart.(	Knowledge an practical application	Tests and repo
13	2	Practical and theoretical	Types of control schemes: Features control charts (Control chart the number of defects in a single singular C-Chart).	Knowledge an practical application	Tests and repo
14	2	Practical and theoretical	Types of control schemes: Characteristics control charts (control chart for t average number of defec in the U-chart vocabular	Knowledge an practical application	Tests and repo
15	2	Practical and theoretical	Discussing progress reports by students with a test.	Knowledge a practical application	Tests and repo

Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 50 % and final mark 50% summation at last to get the final mark it valuated continually.

Learning and Teaching Resources

Required textbooks (curricular books, any)	**h**ttps://guides.lib.umich.edu/c.php?g=282889&p=15049&utm_source=chatgpt.com
Main references (sources)	https://link.springer.com/book/10.1007/978-3-030-72728-4?utm_source=chatgpt.com
Recommended books and references (scientific journals, reports...)	https://www.jiem.org/?utm_source=chatgpt.com
Electronic References, Websites	Uni University of Michigan, Binghamton, UAH,

	Twente

Curriculum of first level

Course Description of Democracy and Human Rights

14. Course Name:
Democracy and Human Rights
15. Course Code:
(NTU 100)
16. Semester / Year:
Curriculum (15 weeks)\ First Level.
17. Description Preparation Date:
٦/7/2025
18. Available Attendance Forms:
Weekly Lecture Schedules (Theory and Practical), Discussions, Seminars, a Assignments
19. Number of Credit Hours (Total) / Number of Units (Total)
2 hours per week (30 hours).
20. Course administrator's name (mention all, if more than one name)
Name: Email:
21. Course Objectives

Course Objectives	-The student learns about the principles and values of human rights, introduces them, and educates generations to respect and adhere to them. -Learn about public freedoms, what these freedoms are in their details, and the .relationship between them and democracy
22. Teaching and Learning Strategies	
Strategy	((Theoretical lectures / discussion and dialogue / practical lecture field visits / seminars / laboratories / office activities / exam solutions / graduation project / summer training))

23. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1+2	2	The roots of human rights	The roots of human rights and their development in human history. Human rights in ancient and medieval times	**Theoretical lectures**	Daily tests
٣+٤	2	Agreements and charters	The first requirement: human rights in ancient civilizations, with a focus on the Mesopotamian civilization. The second requirement: Human rights in divine laws, with a focus on human rights in Islam.	**Theoretical lectures**	Daily tests
٥+٦	2	Charters and constitutions	Third requireme Human rights in t Middle Ages	**Theoretical lectures**	Daily tests
٧+٨	2	Public freedoms and equality	a. Human rights in doctrines, schools and political theories.	**Theoretical lectures**	Daily tests
٩+١٠	2	Classification n of freedoms	B. Human rights in corporations, rights an their declarations, revolutions and constitutions (English documents,)	**Theoretical lectures**	Daily tests

11+12	2	Simplify the freedoms briefly	American Revolution, French Revolution, Russian Revolution	**Theoretical lectures**	Daily tests

24. Course Evaluation
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 50 % and final mark 50% summation at last to get the final mark

25. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	are available in the department and institute library free of charge
Main references (sources)	are available in the free section and the institute library.
Recommended books and references (scientific journals, reports…)	The Internet, library of department a institute
Electronic References, Websites	The Internet web sites

Course Description of English Language

1. Course Name:
English Language
2. Course Code:
(NTU 101)
3. Semester / Year:
Curriculum (15 weeks)\ First Level.
4. Description Preparation Date:
٦/7/2025
5. Available Attendance Forms:
Weekly Lecture Schedules (Theory and Practical), Discussions, Seminars, a Assignments
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours per week (30 hours).
7. Course administrator's name (mention all, if more than one name)
Name: Nawras khaleel Ibraheem Email:
8. Course Objectives

Course Objectives	Getting to know the basics of the English language, as well as speaking and getting to know the terminology that enables the

	student to understand and know the language.

9. Teaching and Learning Strategies

Strategy	((Theoretical lectures / discussion and dialogue / practical lecture field visits / seminars / laboratories / office activities / exam solutions / graduation project / summer training))

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١+٢	2	**Pronouns**	**Unit one :hello Am/are/is, my/your This is with practice in work**	**-listening to recorder conversations - practicing in groups with teacher/each other**	Daily tests
٣	2	**Pronouns**	**Unit two :your world He/she /they, his/her Questions**	**-listening to recorder conversations - practicing in groups with teacher/each other**	Daily tests
٤	2	**Pronouns**	**Unit four: family and frie Possessive adjecti Possessive's Has/h Adjective+ noun**	**Theoretical lectures**	Daily tests

٥	2	**present tense**	**Unit Five :the way I live Present simple I/you /we /they A and an Adjective + noun**	**-listening to recorder conversations - practicing in groups with teacher/each other**	Daily tests
٦	2	**Adjective**	**Unit six : every day Pres simple he/she Questions a negatives Adverbs frequency**	**-listening to recorder conversations - practicing in groups with teacher/each other s**	Daily tests
٧	2	**Negation and affirmation**	**Unit seven :my favor Question words Pronou This and hat**	**-listening to recorder conversations - practicing in groups with teacher/each other**	Daily tests
٨	٢	**Prepositions**	**Unit eight :where I live There is /are. Prepositions**	**listening recorder conversation practicing groups wi teacher/each other**	Daily tests

٩	٢	times past	Unit nine :times past V /were born Past simple irregular verbs	listening recorder conversation practicing groups wi teacher/each other	Daily tests
١٠	٢	Question Negatives	Unit ten: we had a great tir Past simple -regular irregular Question Negati Ago	listening recorder conversation practicing groups wi teacher/each other	Daily tes
١١	٢	Can /can't Adverbs	Unit eleven :Can /ca Adverbs Requests I can that	listening recorder conversation practicing groups wi teacher/each other	Daily tes
١٢	٢	Some and any	Unit twelve: please I'd lik Some and any Like a would like and thank you	listening recorder conversation practicing groups wi teacher/each other	Daily tes
١٣	٢	Present simple	Unit thirteen: here and n Present continuous Pres simple & present continuou	listening recorder conversation practicing groups wi teacher/each other	Daily tes
١٤	٢	writing email	Unit fourteen: it's time to Future plans Revision writ email and informant letter	listening recorder conversation practicing groups wi teacher/each other	Daily tes

٩	٢	**revision**	**Unit fifteen : revision**		

11. Course Evaluation
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 40 % and final mark 60% summation at last to get the final mark

12.Learning and Teaching Resources	
Required textbooks (curricular books, any)	are available in the department and the insti library free of charge
Main references (sources)	are available in the free section and the institute library.
Recommended books and references (scientific journals, reports...)	The Internet, library of department institute
Electronic References, Websites	The Internet web sites

Course Description of Computer

1. Course Name:
Computer
2. Course Code:
(NTU 102)
3. Semester / Year:
Curriculum (15 weeks)\ First Level.
4. Description Preparation Date:
٦/7/2025
5. Available Attendance Forms:
Weekly Lecture Schedules (Theory and Practical), Discussions, Seminars, a Assignments
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours per week (30 hours).
7. Course administrator's name (mention all, if more than one name)
Name: Email:
8. Course Objectives

Course Objectives	Teaching students the skills of compu applications and their use in the field specialization.

9. Teaching and Learning Strategies

Strategy	((Theoretical lectures / discussion and dialogue / practical lecture field visits / seminars / laboratories / office activities / exam solutions / graduation project / summer training))

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1+2	2	Practical + theoretical	Introduction to computer / computer system / information technology / types of computers / input units / central processing unit / output units / main memory and its types / storing data in memory / factors affecting computer performance Definition of software and its types / System software: operating systems / Programming languages and programming systems / Application software	**Knowledge and practical application**	Tests and reports

3	2	Practical and theoretical	Introduction to Windows / its advantages / turning on the device / shutting down the device / using the mouse / components of the windows screen: the taskbar: icons: and their .) types (standard and general	**Knowledge and practical application**	Daily tests
4	2	Practical and theoretical	Control panel / desktop control / screensaver / windows colors and fonts / screen settings / adjust screen colors / adjust the time and date / volume / change between mouse buttons / double-click speed control / change the mouse cursor / mouse speed control / install and uninstall programs	**Knowledge and practical application**	Daily tests
5	2	Practical and theoretical	Minimize and enlarge the window / permanently close / temporarily close / move the window / control the window size / ways to run applications and programs	**Knowledge and practical application**	Daily tests+reports

6	2	Practical and theoretical	Arranging start me items / deleting st menu items / adding submenu to the st menu / adding a new button to the st menu	**Knowledge and practical application**	Daily tests
7	2	Practical and theoretical	Basic system informati / Turn off unwanted ap Windows explorer / My computer icon / My computer window pane	**Knowledge and practical application**	Daily tests
9+8			Recycle Bin (dele restore and empty t basket) / my docume icon	**Knowledge a practical application**	Tests and repo
10+11	2	Practical and theoretical	Defining files and folders / Defining files and folders / Defining files and folders properties / Creating files and folders / Changing the name of files and folders / Moving a file or folder / Copying a file or folder / Searching for a file or folder / Creating a shortcut icon for an application or file	**Knowledge a practical application**	Tests and reports

13+12	2	Practical and theoretical	Calculator / notepad notebook / using t note to edit and crea the paint file / scre components / creati graphics / specifying t foreground a background colors choosing the size of t brush line / defining a selecting the drawi tool / saving the drawi / making the drawing a deskt background	**Knowledge a practical application**	Tests and repo
14+15	2	Practical and theoretical	Viruses / the reason the name / definition ways of spreading t virus / symptoms infection with the virus methods of protection types of virus computer crimes / theft / hackers	**Knowledge a practical application**	Tests a reports

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 50 % and final mark 50% summation at last to get the final mark

12. Learning and Teaching Resources

Required textbooks (curricular books, any)	are available in the department and institute library free of charge
Main references (sources)	are available in the free section and the institute library.
Recommended books and references (scientific journals, reports...)	The Internet, library of department a institute
Electronic References, Websites	The Internet web sites

Course Description of Arabic Language

1. Course Name:
Arabic Language
2. Course Code:
(NTU 102)
3. Semester / Year:
Curriculum (15 weeks)\ First Level.
4. Description Preparation Date:
٦/7/2025
5. Available Attendance Forms:
Weekly Lecture Schedules (Theory), Discussions, Seminars, and Assignments
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours per week (30 hours).
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Layla Talal Email:
8. Course Objectives

Course Objectives	Teaching the student to use the Arabic language i administrative and accounting correspondence an developing his skills in this field.
9. Teaching and Learning Strategies	
Strategy	((Theoretical lectures / discussion and dialogue / practical lecture field visits / seminars / laboratories / office activities / exam solutions / graduation project / summer training))

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	2 Practical		An introduction to linguistic errors - the tied and long ta'a and the open ta'a	**Knowledge and application**	Tests and reports
2	2	Practical and l	Rules for writing the extended and reduced alif - the solar and lunar letters	**Knowledge and pplication**	Daily tests
3	2	Practical and	The opposite and the light	**Knowledge and application**	Daily tests
4	2	Practical and	Humza writing	**Knowledge and application**	Daily tests+reports
5	2	Practical and	punctuation marks	**Knowledge and application**	Daily tests
6	2	Practical and theoretical	Noun and verb and differentiate between them	**Knowledge and application**	Daily tests
7			reactants	**Knowledge a practical application**	Tests and repo
8	2	Theoretical	The number	**Knowledge a practical application**	Tests and reports
9+10	2	Theoretical	Common language erro applications	**Knowledge a practical application**	Tests and repo
11	2	Theoretical	Noon and Tanween meanings of prepositio	**Knowledge a practical application**	Tests and repo

12	2	Theoretical	Formal aspects administrative discurriculum	**Knowledge**	Tests
13+14	2	Theoretical	Administrative discurricul language	**Knowledge**	Daily tests
15	2	Theoretical	Forms of administrat correspondence	**Knowledge**	Daily tests

11. Course Evaluation
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 40 % and final mark 60% summation at last to get the final mark

12. Learning and Teaching Resources	
Required textbooks (curricular books, any)	are available in the department and institute library free of charge
Main references (sources)	are available in the free section and the institute library.
Recommended books and references (scientific journals, reports...)	The Internet, library of department a institute
Electronic References, Websites	The Internet web sites

Course Description of sport

1. Course Name:
Sport
2. Course Code:
((NTU 104)
3. Semester / Year:
Curriculum (15 weeks)\ First Level.
4. Description Preparation Date:
٦/7/2025
5. Available Attendance Forms:
Weekly Lecture Schedules (Theory and Practical), Discussions, Seminars, a Assignments
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours per week (30 hours).
7. Course administrator's name (mention all, if more than one name)
Name: Basim Hamad Hasan

Email: basem.hamad2a@st.tu.edu.iq

8. Course Objectives

Course Objectives	The student should be able to recognize the most important types of sports and what are the laws and skills specific to some sports..

9. Teaching and Learning Strategies

Strategy	((Theoretical lectures / discussion and dialogue / practical lecture field visits / seminars / laboratories / office activities / exam solutions / graduation project / summer training))

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Practical + theoretical	Sports definition, importance and types	Knowledge and practical application	Tests and reports
2	2	Practical and theoretical	Human body movement mechanism	Knowledge and practical application	Daily tests
3	2	Practical and theoretical	Common sports injuries	Knowledge and practical application	Daily tests
4	2	Practical and theoretical	Basic skills of the game of basketball	Knowledge and practical application	Daily tests+reports
5	2	Practical and theoretical	International law of the ga of basketball	Knowledge and practical application	Daily tests
6	2	Practical and theoretical	Basic skills of table tennis a its international law comput window panes	Knowledge and practical application	Daily tests
7			Basic skills of volleyball a its international law	Knowledge a practical application	Tests a reports

8	2	Practical and theoretical	swimming sport	Knowledge and practical application	Tests and reports
9	2	Practical and theoretical	Basic skills of tennis and international law	Knowledge and practical application	Tests and reports
10	2	Practical and theoretical	Basic handball skills	Knowledge and practical application	Tests and reports
11	2	Practical and theoretical	International law of handball	Knowledge and practical application	Tests and reports
12	2	Practical and theoretical	Arena and field games (typ international law of)the game	Knowledge and practical application	Tests and reports
13	2	Practical and theoretical	Basic soccer skills	Knowledge and practical application	Tests and reports
14	2	Practical and theoretical	Management of competitio and sports competitions	Knowledge and practical application	Tests and reports
15	2	Practical and theoretical	Sports laws and legislation	Knowledge and practical application	Tests and reports

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 50 % and final mark 50% summation at last to get the final mark

12. Learning and Teaching Resources

Required textbooks (curricular books, any)	are available in the department and institute library free of charge
Main references (sources)	are available in the free section and the institute library.
Recommended books and references (scientific journals, reports...)	The Internet, library of department a institute
Electronic References, Websites	The Internet web sites

Course Description of Measurements and welding

1. Course Name:
Measurements and welding
2. Course Code:
METP122
3. Semester / Year:
Curriculum (15 weeks)\ First Level.
4. Description Preparation Date:
٦/7/2025
5. Available Attendance Forms:
Weekly Lecture Schedules (Theory and Practical), Discussions, Seminars, a Assignments
6. Number of Credit Hours (Total) / Number of Units (Total)
٤ hours per week (٦0 hours).
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Asmaa Muneam Abdullah Email: asmaamuneam@ntu.edu.iq
8. Course Objectives

Course Objectives	The student will be able to identify the fundament of welding and the most important measuring too as well as how to use them accurately, correctly, a appropriately to serve the purpose in welding manufacturing in general, along with understandi the types of welding and their applications mechanical work...
9. Teaching and Learning Strategies	
Strategy	((Theoretical lectures / discussion and dialogue / practical lectures field visits / seminars / laboratories / office activities / examp solutions / graduation project / summer training))

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	4	Practical + theoretical	Definition of measurement and units of measurement, error and its causes, main dimensional measurement methods, simple conveyor measurement devices	Knowledge and practical application	Tests and reports
2	4	Practical and theoretical	Qadamat al-Qiyas (Al-Farniyat), its parts, uses, and types.	Knowledge and practical application	Daily tests
3	4	Practical and theoretical	Micrometers, their types, uses, parts, the idea of \ u200b \ u200bthe micrometer	Knowledge and practical application	Daily tests
4	4	Practical and theoretical	Measurement templates and their uses, types, method of use.	Knowledge and practical application	Daily tests+reports
5	4	Practical and theoretical	Measuring angles and s shapes. Angle measuring too Measuring bars (sprinkles) of different types.	Knowledge and practical application	Daily tests
6	4	Practical and theoretical	Measuring method for scr elements, external and inter diameters, step measurem and step diameter, elect mechanical comparators.	Knowledge and practical application	Daily tests
7	4		Optical device, some mod measurement methods (au frequency meters, opti digital).	Knowledge a practical application	Tests a reports
8	4	Practical and theoretical	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.	Knowledge and practical application	Tests and reports

9	4	Practical and theoretical	Chainsaw cutting, conditions to be met in sawing process, sawi weapons, crowns and th types, crowns, method enactment and maintenan types of hammer heads a method of fixing them.	Knowledge and practical application	Tests and reports
10	4	Practical and theoretical	Piercing and bulguria, types perforations, types of prime types of remers, how perform the process of drilli and bulging.	Knowledge and practical application	Tests and reports
11	4	Practical and theoretical	Models, types, wood used in their manufacture, conditions that must be provided in the form.	Knowledge and practical application	Tests and reports
12	4	Practical and theoretical	The tools and devices used making the model, inflorescence templates, and simple model design method	Knowledge and practical application	Tests and reports
13	4	Practical and theoretical	Casting, historical overview, roads, major casting (casting, sand casting, casting, other methods of casting) The advantages of the casting process.	Knowledge and practical application	Tests and reports
14	4	Practical and theoretical	Foundry sand, casting sand, specifications, components, casting sand, used appliances and additives to casting sand	Knowledge and practical application	Tests and reports
15	4	Practical and theoretical	Pruning and tools used in the preparation of sand molds, simple and seat lasts, parasitic molds and exclusionary molds used.	Knowledge and practical application	Tests and reports

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 50 % and final mark 50% summation at last to get the final mark

12. Learning and Teaching Resources

Required textbooks (curricular books,	https://www.blinkist.com/en/content/t

any)	pics/welding-en?utm_source=chatgpt.comthe
Main references (sources)	https://www.blinkist.com/en/content/t pics/welding-en?utm_source=chatgpt.co
Recommended books and references (scientific journals, reports...)	The Internet, library of department a institute
Electronic References, Websites	https://www.blinkist.com/en/content/t pics/welding-en?utm_source=chatgpt.co

Course Description of casting

1. Course Name:
casting
2. Course Code:
METP123
3. Semester / Year:
Curriculum (15 weeks)\ First Level.
4. Description Preparation Date:
٦/7/2025
5. Available Attendance Forms:
Weekly Lecture Schedules (Theory and Practical), Discussions, Seminars, a Assignments
6. Number of Credit Hours (Total) / Number of Units (Total)
٤ hours per week (٦0 hours).
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Asmaa Muneam Abdullah Email: asmaamuneam@ntu.edu.iq
8. Course Objectives

Course Objectives	To enable students to understand the fundamental principles, processes, and applications of metal casting, including mold design, pattern making, melting and pouring techniques, solidification, and finishing operations. The course aims to develop students' skills in selecting appropriate casting method materials, and equipment, as well as applying quality control ar safety practices in casting operations for mechanical manufacturing application

9. Teaching and Learning Strategies

Strategy	((Theoretical lectures / discussion and dialogue / practical lectures field visits / seminars / laboratories / office activities / examp

	solutions / graduation project / summer training))

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١	4	Practical + theoretical	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.	Knowledge and practical application	Tests and reports
2	4	Practical and theoretical	Casting, types, centrifugal casting, types.	Knowledge and practical application	Daily tests
3	4	Practical and theoretical	Casting with lost wax, continuous casting, shell casting.	Knowledge and practical application	Daily tests
4	4	Practical and theoretical	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.	Knowledge and practical application	Daily tests+reports
5	4	Practical and theoretical	Casting castings, their equipment and foundations, cleaning castings, casting defects, checking castings.	Knowledge and practical application	Daily tests

6	4	Practical and theoretical	Welding, foundations for metal welding, clarifying the main methods of welding which (pressure welding, electric arc fusion welding, other methods for smelting welding, tress welding and caustic welding) Types of welding joints	Knowledge and practical application	Daily tests
7	4		Hot pressure welding including (electromotive resistance welding including point and line welding, flash welding) cold pressure welding, explosive pressure welding, ultrasound pressure welding	Knowledge and practical application	Tests and reports
8	4	Practical and theoretical	Smelting and gas welding, oxy-hydrogen and oxy-acetylene welding, types of flame, right and left-hand welding, balla and acetylene cutting.	Knowledge and practical application	Tests and reports
9	4	Practical and theoretical	Electric arc welding, welding current, direct polarity and reverse polarity method, types of electrodes, coating and types of metal electrodes.	Knowledge and practical application	Tests and reports
10	4	Practical and theoretical	Electrode movement, electrode isolation and welding area methods, electric arc welding using protective gases (carbon dioxide welding, argon arc welding, vapor welding(	Knowledge and practical application	Tests and reports
11	4	Practical and theoretical	Atomic Hydrogen Electric Arc Welding, Guided Arc Welding, Flux Fusion Welding.	Knowledge and practical application	Tests and reports

12	4	Practical and theoretical	Bracing and caustic welding (mortar welding and casting welding) and some modern types of welding (laser beam welding, electron beam welding.(	Knowledge and practical application	Tests and reports
13	4	Practical and theoretical	Welding defects, welding tests.	Knowledge and practical application	Tests and reports
14	4	Practical and theoretical	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.	Knowledge and practical application	Tests and reports
15	4	Practical and theoretical	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).	Knowledge and practical application	Tests and reports

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 50 % and final mark 50% summation at last to get the final mark

12. Learning and Teaching Resources

Required textbooks (curricular books, any)	https://old.foundrygate.com/upload/artigos/f 0Ku31Q3bfcyfBS8gZTLyud5574.pdf?utm_sour =chatgpt.com
Main references (sources)	https://www.accessengineeringlibrary.com/c tent/book/9780071789752?utm_source=chat t.com
Recommended books and references	https://link.springer.com/book/10.1007/978

(scientific journals, reports...)	3-031-84620-5?utm_source=chatgpt.com
Electronic References, Websites	https://www.barnesandnoble.com/w/comple -casting-handbook-john- campbell/1102212662?utm_source=chatgpt.c m

Course Description of Materials properties

1. Course Name:
Materials properties
2. Course Code:
METP124
3. Semester / Year:
Curriculum (15 weeks)\ First Level.
4. Description Preparation Date:
٦/7/2025
5. Available Attendance Forms:
Weekly Lecture Schedules (Theory and Practical), Discussions, Seminars, a Assignments
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours per week (30 hours).
7. Course administrator's name (mention all, if more than one name)
Name: Ass.lec. Ahmed Jasim Muhammed Email: ahmed.jm@ntu.edu.iq
8. Course Objectives

Course Objectives	□ Introduce students to the physical, mechanical, and chemica properties of engineering materials. □ Enable students to understand the influence of internal structure on the properties and behavior of materials during use □ Equip students with the skills needed to select appropriate materials for mechanical and industrial applications. □ Train students in methods of testing and accurately measurir material properties using standard devices and procedures. □ Promote awareness of the importance of improving material properties through heat treatment or surface treatment to enhan performance and efficiency.

9. Teaching and Learning Strategies

Strategy	((Theoretical lectures / discussion and dialogue / practical lectures

	field visits / seminars / laboratories / office activities / exam solutions / graduation project / summer training))

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١	2	Practical + theoretical	Introduction	Knowledge and practical application	Tests and reports
2	2	Practical and theoretical	The atom, the element, types of bonds in engineering materials.	Knowledge and practical application	Daily tests
3	2	Practical and theoretical	Crystalline and amorphous materials	Knowledge and practical application	Daily tests
4	2	Practical and theoretical	Crystalline forms (H.C.P) (F.C.C) (B.C.C).	Knowledge and practical application	Daily tests+reports
5	2	Practical and theoretical	Mechanical properties of materials. (Stress, strain-strain-strain-flexion, ductility, collapse).	Knowledge and practical application	Daily tests
6	2	Practical and theoretical	Hardness, hardness test.	Knowledge and practical application	Daily tests
7			Supplement.	Knowledge and practical application	Tests and reports
8	2	Practical and theoretical	Toughness, toughness test	Knowledge and practical application	Tests and reports

9	2	Practical and theoretical	Thermal properties of materials. (Thermal expansion, thermal conductivity)	Knowledge and practical application	Tests and reports
10	2	Practical and theoretical	Electrical properties of materials (ionic materials, insulating materials, metallic materials, factors affecting conductivity).	Knowledge and practical application	Tests and reports
11	2	Practical and theoretical	Magnetic properties of materials (Ferromagnetic materials, paramagnetic materials, diamagnetic materials, magnetic retardation, factors affecting magnetism).	Knowledge and practical application	Tests and reports
12	2	Practical and theoretical	Chemical properties of materials (Corrosion, electrochemical chain, oxidation)	Knowledge and practical application	Tests and reports
13	2	Practical and theoretical	Iron, its most important material, its extraction, blast furnace, and transformers.	Knowledge and practical application	Tests and reports
14	2	Practical and theoretical	Carbon steel, its most important types, properties, and uses.	Knowledge and practical application	Tests and reports
15	2	Practical and theoretical	Alloy steel, its most important types, properties, and uses	Knowledge and practical application	Tests and reports
11. Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 50 % and final mark 50% summation at last to get the final mark					
12. Learning and Teaching Resources					

Required textbooks (curricular books, any)	https://www.reddit.com/r/materials/comme s/2vzuco/whatre_essential_books_about_mate als_science/?utm_source=chatgpt.com https://link.springer.com/book/10.1007/978 1-349-05837-2?utm_source=chatgpt.com
Main references (sources)	https://www.amazon.com/Engineering-Materials-Properties-Selection-9th/dp/0137128428?utm_source=chatgpt.com
Recommended books and references (scientific journals, reports...)	https://www.wiley.com/en-us/Materials%2BEngineering%2Band%2BSci ce%3A%2BPrinciples%2C%2BProperties%2C 2Band%2BProcesses%2C%2B2nd%2BEdition p-00366060?utm_source=chatgpt.com
Electronic References, Websites	https://www.wiley.com/en-us/Materials%2BEngineering%2Band%2BSci ce%3A%2BPrinciples%2C%2BProperties%2C 2Band%2BProcesses%2C%2B2nd%2BEdition p-00366060?utm_source=chatgpt.com

Course Description of Metal alloys

1. Course Name:
Metal alloys
2. Course Code:
METP125
3. Semester / Year:
Curriculum (15 weeks)\ First Level.
4. Description Preparation Date:
٦/7/2025
5. Available Attendance Forms:
Weekly Lecture Schedules (Theory and Practical), Discussions, Seminars, a Assignments
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours per week (30 hours).
7. Course administrator's name (mention all, if more than one name)
Name: Ass.lec. Ahmed Jasim Muhammed Email: ahmed.jm@ntu.edu.iq
8. Course Objectives

Course Objectives	Introduce students to the classification, composition, a microstructure of common ferrous and non-ferrous alloys. Enable students to understand the relationship between alloyi elements, phase transformations, and resulting mechanic physical, and chemical properties. Develop skills in selecting appropriate alloys for varic mechanical, structural, and industrial applications. Provide knowledge of manufacturing processes, heat treatme and surface modification techniques used to improve all performance. Promote awareness of corrosion behavior, wear resistance, a quality control in alloy production and usage.

9. Teaching and Learning Strategies

Strategy	((Theoretical lectures / discussion and dialogue / practical lectures field visits / seminars / laboratories / office activities / examp solutions / graduation project / summer training))

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Practical + theoretical	Cast iron, types, properties, uses	Knowledge and practical application	Tests and reports
2	2	Practical and theoretical	supplement	Knowledge and practical application	Daily tests
3	2	Practical and theoretical	Copper, its alloys, properties, uses.	Knowledge and practical application	Daily tests
4	2	Practical and theoretical	Aluminum, its alloys, properties, uses.	Knowledge and practical application	Daily tests+repo rts
5	2	Practical and theoretical	Nickel, its alloys, properties, uses	Knowledge and practical application	Daily tests

6	2	Practical and theoretical	Tin, its alloys, properties, uses. Zinc, its alloys, properties, uses. Manganese, its alloys, properties, uses.	Knowledge and practical application	Daily tests
7			Other nonferrous alloys (white metals, bearings alloys)	Knowledge and practical application	Tests and reports
8	2	Practical and theoretical	Powder metallurgy (Methods for obtaining mineral powders, mechanical methods, physical and chemical methods, natural, mechanical, and chemical properties of powders.	Knowledge and practical application	Tests and reports
9	2	Practical and theoretical	Powder pressing, sintering process	Knowledge and practical application	Tests and reports
10	2	Practical and theoretical	Ceramic materials	Knowledge and practical application	Tests and reports
11	2	Practical and theoretical	Glass, types, manufacture, uses	Knowledge and practical application	Tests and reports
12	2	Practical and theoretical	Concrete, its industrial uses	Knowledge and practical application	Tests and reports
13	2	Practical and theoretical	Polymers, polymer molecules, polymers.	Knowledge and practical application	Tests and reports
14	2	Practical and theoretical	Properties and uses of plastics.	Knowledge and practical application	Tests and reports
15	2	Practical and theoretical	Supplement plastics.	Knowledge and practical application	Tests and reports

11. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 50 % and final mark 50% summation at last to get the final mark	
12. Learning and Teaching Resources	
Required textbooks (curricular books, any)	https://dl.asminternational.org/technical-books/monograph/94/Elements-of-Metallurg and-Engineering-Alloys?utm_source=chatgpt.com
Main references (sources)	https://www.cambridgescholars.com/product 978-1-0364-0546-5?utm_source=chatgpt.com
Recommended books and references (scientific journals, reports...)	https://www.sciencedirect.com/journal/journ -of-alloys-and-compounds?utm_source=chatgpt.com
Electronic References, Websites	https://en.wikipedia.org/wiki/Steeluniversity rg?utm_source=chatgpt.com

Course Description of Mathematics 1

1. Course Name:	
Mathematics 1	
2. Course Code:	
TIMO110	
3. Semester / Year:	
Curriculum (15 weeks)\ First Level.	
4. Description Preparation Date:	
٦/7/2025	
5. Available Attendance Forms:	
Weekly Lecture Schedules (Theory and Practical), Discussions, Seminars, a Assignments	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 hours per week (30 hours).	
7. Course administrator's name (mention all, if more than one name)	
Name: Ass.lec. Ahmed Jasim Muhammed Email: ahmed.jm@ntu.edu.iq	
8. Course Objectives	
Course Objectives	Develop students' ability to apply mathematical concepts to sol engineering and technical problems.

	Strengthen skills in algebra, trigonometry, calculus, and statistic relevant to mechanical applications. Enhance problem-solving and analytical thinking for designing, analyzing, and improving mechanical systems.

9. Teaching and Learning Strategies

Strategy	((Theoretical lectures / discussion and dialogue / practical lectures field visits / seminars / laboratories / office activities / examp solutions / graduation project / summer training))

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Practical + theoretical	Determinants and their properties. Solving simultaneous equations by the method of determinants (Cramer).	Knowledge and practical application	Tests and reports
2	2	Practical and theoretical	Determinants and their properties. Solving simultaneous equations by the method of determinants (Cramer).	Knowledge and practical application	Daily tests
3	2	Practical and theoretical	Differentiation, Algebra of Derivatives, Multiple Functions	Knowledge and practical application	Daily tests
4	2	Practical and theoretical	Differentiation, Algebra of Derivatives, Multiple Functions	Knowledge and practical application	Daily tests+reports
5	2	Practical and theoretical	Differentiation, Algebra of Derivatives, Multiple Functions	Knowledge and practical application	Daily tests

6	2	Practical and theoretical	Trigonometric, logarithmic, exponential functions and their derivatives and implicit functions, chain rule.	Knowledge and practical application	Daily tests
7			Trigonometric, logarithmic, exponential functions and their derivatives and implicit functions, chain rule.	Knowledge and practical application	Tests and reports
8	2	Practical and theoretical	Trigonometric, logarithmic, exponential functions and their derivatives and implicit functions, chain rule.	Knowledge and practical application	Tests and reports
9	2	Practical and theoretical	Graphing functions, plotting the trigonometric function and the maxima and minima	Knowledge and practical application	Tests and reports
10	2	Practical and theoretical	Graphing functions, plotting the trigonometric function and the maxima and minima	Knowledge and practical application	Tests and reports
11	2	Practical and theoretical	Graphing functions, plotting the trigonometric function and the maxima and minima	Knowledge and practical application	Tests and reports
12	2	Practical and theoretical	Applications of physical differential, velocity and acceleration, and engineering differential applications	Knowledge and practical application	Tests and reports
13	2	Practical and theoretical	Applications of physical differential, velocity and acceleration, and engineering differential applications	Knowledge and practical application	Tests and reports

14	2	Practical and theoretical	Integral, laws, and its relationship to differentiation, definite and indeterminate integral.	Knowledge and practical application	Tests and reports
15	2	Practical and theoretical	Integral, laws, and its relationship to differentiation, definite and indeterminate integral.	Knowledge and practical application	Tests and reports

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 50 % and final mark 50% summation at last to get the final mark

12. Learning and Teaching Resources

Required textbooks (curricular books, any)	https://www.routledge.com/Mathematics-for-Mechanical-Engineers/Kreith-Ames-Cain-Tong Steele-Coleman-Kautz-Frangopol-Norton/p/book/9780367399160?srsltid=AfmOoqk3E-VCpdRaAitNLbO1gtRwpPw6k5t6GUlqHSQjruoH6wioH-&utm_source=chatgpt.com
Main references (sources)	https://www.reddit.com/r/engineering/comnnts/dkkmkq/whats_the_best_engineering_matmatics_books_out/?utm_source=chatgpt.com
Recommended books and references (scientific journals, reports...)	https://www.routledge.com/Mathematics-for-Mechanical-Engineers/Kreith-Ames-Cain-Tong Steele-Coleman-Kautz-Frangopol-Norton/p/book/9780367399160?srsltid=AfmOoqk3E-VCpdRaAitNLbO1gtRwpPw6k5t6GUlqHSQjruoH6wioH-&utm_source=chatgpt.com
Electronic References, Websites	https://interestingengineering.com/culture/1educational-websites-that-every-mechanical-engineer-should-know?utm_source=chatgpt.cc

Course Description of Mathematics ٢

1. Course Name:
Mathematics ٢
2. Course Code:
TIMO111
3. Semester / Year:
Curriculum (15 weeks)\ First Level.
4. Description Preparation Date:
٦/7/2025
5. Available Attendance Forms:
Weekly Lecture Schedules (Theory and Practical), Discussions, Seminars, a Assignments
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours per week (30 hours).
7. Course administrator's name (mention all, if more than one name)
Name: Ass.lec. Ahmed Jasim Muhammed Email: ahmed.jm@ntu.edu.iq
8. Course Objectives

Course Objectives	Develop students' ability to apply mathematical concepts to sol engineering and technical problems. Strengthen skills in algebra, trigonometry, calculus, and statisti relevant to mechanical applications. Enhance problem-solving and analytical thinking for designing analyzing, and improving mechanical systems.

9. Teaching and Learning Strategies	
Strategy	((Theoretical lectures / discussion and dialogue / practical lectures field visits / seminars / laboratories / office activities / examp solutions / graduation project / summer training))

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

۱	2	Practical + theoretical	Implicit integration, applications of geometric (areas and volumes) and physical integration	Knowledge and practical application	Tests and reports
2	2	Practical and theoretical	Implicit integration, applications of geometric (areas and volumes) and physical integration	Knowledge and practical application	Daily tests
3	2	Practical and theoretical	Implicit integration, applications of geometric (areas and volumes) and physical integration	Knowledge and practical application	Daily tests
4	2	Practical and theoretical	Implicit integration, applications of geometric (areas and volumes) and physical integration	Knowledge and practical application	Daily tests+reports
5	2	Practical and theoretical	General methods of integration, compensation, partial, and use of exponential and logarithmic partial fractions.	Knowledge and practical application	Daily tests
6	2	Practical and theoretical	General methods of integration, compensation, partial, and use of exponential and logarithmic partial fractions.	Knowledge and practical application	Daily tests
7			Discrete, homogeneous, and linear differential equations with their different applications.	Knowledge and practical application	Tests and reports
8	2	Practical and theoretical	Discrete, homogeneous, and linear differential equations with their different applications.	Knowledge and practical application	Tests and reports

9	2	Practical and theoretical	Discrete, homogeneous, and linear differential equations with their different applications.	Knowledge and practical application	Tests and reports
10	2	Practical and theoretical	Discrete, homogeneous, and linear differential equations with their different applications.	Knowledge and practical application	Tests and reports
11	2	Practical and theoretical	Discrete, homogeneous, and linear differential equations with their different applications	Knowledge and practical application	Tests and reports
12	2	Practical and theoretical	Vectors (cross multiplication, quantification, angles between vectors.	Knowledge and practical application	Tests and reports
13	2	Practical and theoretical	Vectors (cross multiplication, quantification, angles between vectors.	Knowledge and practical application	Tests and reports
14	2	Practical and theoretical	Statistics (principles) and probability theory	Knowledge and practical application	Tests and reports
15	2	Practical and theoretical	Statistics (principles) and probability theory	Knowledge and practical application	Tests and reports

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 50 % and final mark 50% summation at last to get the final mark

12. Learning and Teaching Resources

Required textbooks (curricular books, any)	https://www.routledge.com/Mathematics-for-Mechanical-Engineers/Kreith-Ames-Cain-Tong-Steele-Coleman-Kautz-Frangopol-Norton/p/book/9780367399160?srsltid=AfmOoqk3E-VCpdRaAitNLbO1gtRwpPw6k5t6GUlqHSQjruoH6wioH-&utm_source=chatgpt.com

Main references (sources)	https://www.reddit.com/r/engineering/comm nts/dkkmkq/whats_the_best_engineering_mat matics_books_out/?utm_source=chatgpt.com
Recommended books and references (scientific journals, reports...)	https://www.routledge.com/Mathematics-for- Mechanical-Engineers/Kreith-Ames-Cain-Tong Steele-Coleman-Kautz-Frangopol-Norton/p/book/9780367399160?srsltid=Afm Ooqk3E-VCpdRaAitNLbO1gtRwpPw6k5t6GUlqHSQjruo H6wioH-&utm_source=chatgpt.com
Electronic References, Websites	https://interestingengineering.com/culture/1 educational-websites-that-every-mechanical-engineer-should-know?utm_source=chatgpt.co

Course Description of Mechanical Workshop

1. Course Name:	
Mechanical Workshop	
2. Course Code:	
TIOM112	
3. Semester / Year:	
Curriculum (15 weeks)\ First Level.	
4. Description Preparation Date:	
٦/7/2025	
5. Available Attendance Forms:	
Weekly Lecture Schedules (Theory and Practical), Discussions, Seminars, a Assignments	
6. Number of Credit Hours (Total) / Number of Units (Total)	
٦ hours per week (٩0 hours).	
7. Course administrator's name (mention all, if more than one name)	
Name: Email:	
8. Course Objectives	
Course Objectives	Develop students' ability to apply mathematical concepts to sol engineering and technical problems. Strengthen skills in algebra, trigonometry, calculus, and statisti relevant to mechanical applications.

	Enhance problem-solving and analytical thinking for designing, analyzing, and improving mechanical systems.

9. Teaching and Learning Strategies

Strategy	((Theoretical lectures / discussion and dialogue / practical lectures field visits / seminars / laboratories / office activities / examp solutions / graduation project / summer training))

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١	٦	Practical training	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.	Knowledge and practical application	Tests and reports
٢	٦	Practical training	Training completion, model parts finishing and assembly methods, final dimensions	Knowledge and practical application	Daily tests

3	٦	Practical training	Compound Models: Explanation of Polynomials, Inner Spaces	Knowledge and practical application	Daily tests
4	٦	Practical training	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.	Knowledge and practical application	Daily tests+reports
5	٦	Practical training	Sand mold of a one-piece model with fixing outfall and elevators, metal smelting and casting, extraction, and cleaning of castings	Knowledge and practical application	Daily tests
6	٦	Practical training	Forming a sand mold like before, melting the metal into a mold, removing the cast and cleaning it	Knowledge and practical application	Daily tests

7	٦	Practical training	Casting sand molds in a 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.	Knowledge and practical application	Tests and reports
8	٦	Practical training	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.	Knowledge and practical application	Tests and reports
9	٦	Practical training	Metal melting furnaces, types, characteristics, uses, rotary kiln, stirred, static furnaces	Knowledge and practical application	Tests and reports

10	٦	Practical training	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.	Knowledge and practical application	Tests and reports
11	٦	Practical training	The uses of files, the method of cleaning files, the cold process, an exercise on the simple shank and filo. Chainsaw cutting Hand saw, saw weapon, fixing saw weapon, conditions to be met in sawing, chainsaw cutting exercise.	Knowledge and practical application	Tests and reports

12	٦	Practical trainings	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. 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. 3 -The screws Types of screws, internal and external dental schedules Training to perform various screwdriving operations.	Knowledge and practical application	Tests and reports
13	٦	Practical training	Various training on the work of the filings.	Knowledge and practical application	Tests and reports
14	٦	Practical training	The importance of maintenance for machinery and equipment, clarifying the periodic and comprehensive maintenance processes, and how to prepare maintenance reports	Knowledge and practical application	Tests and reports

15	٦	Practical training	1. of sealants, sealants, their uses, methods of fixing and removing them, and reviewing their work Types of valves, methods of operation, detection, and repair.	Knowledge and practical application	Tests and reports

11. Course Evaluation
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 50 % and final mark 50% summation at last to get the final mark

12. Learning and Teaching Resources	
Required textbooks (curricular books, any)	https://www.amazon.com/Mechanical-Engineering-Laboratory-Manual-Smith/dp/1148793380?utm_source=chatgpt.com
Main references (sources)	https://open.umn.edu/opentextbooks/textbooks/851?utm_source=chatgpt.com
Recommended books and references (scientific journals, reports...)	https://eng.libretexts.org/Bookshelves/Mechanical_Engineering?utm_source=chatgpt.com
Electronic References, Websites	https://eng.libretexts.org/Bookshelves/Mechanical_Engineering?utm_source=chatgpt.com

Course Description of Advanced Mechanical Workshop

13. Course Name:
Advanced Mechanical Workshop
14. Course Code:
METP128
15. Semester / Year:
Curriculum (15 weeks)\ First Level.
16. Description Preparation Date:
٦/7/2025
17. Available Attendance Forms:
Weekly Lecture Schedules (Theory and Practical), Discussions, Seminars, and Assignments
18. Number of Credit Hours (Total) / Number of Units (Total)
٦ hours per week (٩٠ hours).

19. Course administrator's name (mention all, if more than one name)
Name: Email:
20. Course Objectives

Course Objectives	Develop students' ability to apply mathematical concepts to sol engineering and technical problems. Strengthen skills in algebra, trigonometry, calculus, and statisti relevant to mechanical applications. Enhance problem-solving and analytical thinking for designing analyzing, and improving mechanical systems.

21. Teaching and Learning Strategies	
Strategy	((Theoretical lectures / discussion and dialogue / practical lectures field visits / seminars / laboratories / office activities / examp solutions / graduation project / summer training))

22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

١	٦	Practical training	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.	Knowledge and practical application	Tests and reports
2	٦	Practical training	Practical exercises: Cross-surface welding, orthogonal surfaces, oblique surfaces, circle welding, longitudinal and transverse cutting	Knowledge and practical application	Daily tests
3	٦	Practical training	Welding equipment, practical training in the use of electric arc in welding various surfaces, equipment used, electrodes and their installation method, practical training	Knowledge and practical application	Daily tests
4	٦	Practical training	CO¬¬2 gas welding and gas cutting operations, equipment used and precautions to be met Doing exercises on welding workpieces using CO¬¬2 gas	Knowledge and practical application	Daily tests+reports

5	٦	Practical training	Training in gas-shielded arc welding processes (Tig, Mig).	Knowledge and practical application	Daily tests
6	٦	Practical training	Assembly drills using various different cutting and welding processes.	Knowledge and practical application	Daily tests
7	٦	Practical training	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.	Knowledge and practical application	Tests and reports
8	٦	Practical training	Training on calculating the single cross artifacts, doing an exercise for two crossed cylinders.	Knowledge and practical application	Tests and reports
9	٦	Practical training	Sections of cone and minus cone	Knowledge and practical application	Tests and reports
10	٦	Practical training	Lathe, specifications, uses, accessories, installation methods, lathe operation, types of lathe pens using each of them.	Knowledge and practical application	Tests and reports
11	٦	Practical training	Turning operations: Flat turning, adjustment, center work, simple graduated exercise, use of measuring tools.	Knowledge and practical application	Tests and reports

12	٦	Practical trainings	Lathing of the external stalk by different methods, explaining the laws for each method. Doing an exercise for the external lever	Knowledge and practical application	Tests and reports
13	٦	Practical training	1. Work the different teeth externally (triangle) Do an exercise that includes the tooth of the triangle. The work of the tooth an external box and an exercise.	Knowledge and practical application	Tests and reports
14	٦	Practical training	Cutting speeds, selection and use of their tables	Knowledge and practical application	Tests and reports
15	٦	Practical training	Implementation of training on decentralized turning and use of quadruple sample.	Knowledge and practical application	Tests and reports

23. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 50 % and final mark 50% summation at last to get the final mark

24. Learning and Teaching Resources

Required textbooks (curricular books, any)	https://www.amazon.com/Mechanical-Engineering-Laboratory-Manual-Smith/dp/1148793380?utm_source=chatgpt.com
Main references (sources)	https://open.umn.edu/opentextbooks/textbooks/851?utm_source=chatgpt.com
Recommended books and references (scientific journals, reports...)	https://eng.libretexts.org/Bookshelves/Mechanical_Engineering?utm_source=chatgpt.com
Electronic References, Websites	https://eng.libretexts.org/Bookshelves/Mechanical_Engineering?utm_source=chatgpt.com

Course Description of Mechanics static

1. Course Name:
Mechanics static
2. Course Code:
METP120
3. Semester / Year:
Curriculum (15 weeks)\ First Level.
4. Description Preparation Date:
٦/7/2025
5. Available Attendance Forms:
Weekly Lecture Schedules (Theory and Practical), Discussions, Seminars, a Assignments
6. Number of Credit Hours (Total) / Number of Units (Total)
٤ hours per week (٦٥ hours).
7. Course administrator's name (mention all, if more than one name)
Name: Ass.lec.Noor Abdulateef Ezzat Email: noor.ae@ntu.edu.iq
8. Course Objectives

Course Objectives	Understand basic concepts of displacement, velocity, and acceleration. Analyze motion of particles and rigid bodies mathematicall and graphically. Solve problems involving linear and angular motion. Learn relative motion principles. Apply kinematics in mechanical system analysis.

9. Teaching and Learning Strategies

Strategy	((Theoretical lectures / discussion and dialogue / practical lecture field visits / seminars / laboratories / office activities / exam solutions / graduation project / summer training))

10. Course Structure

Week	Hours	Required Learning	Unit or subject name	Learning method	Evaluation method

		Outcomes			
١	4	Practical + theoretical	Static, fundamental concepts, Force, Scalars and, Vectors, Units , Force polygon , Cartesian Components .	Knowledge and practical application	Tests and reports
2	4	Practical and theoretical	Analysis of Forces	Knowledge and practical application	Daily tests
3	4	Practical and theoretical	Resultant of Concurrent, Coplanar Force system (2-D)	Knowledge and practical application	Daily tests
4	4	Practical and theoretical	Moments	Knowledge and practical application	Daily tests+reports
5	4	Practical and theoretical	Couples, transformation of Couple and the force	Knowledge and practical application	Daily tests
6	4	Practical and theoretical	Resultant of non –Concurre Coplanar force system (3-D)	Knowledge and practical application	Daily tests
7	4		Equilibrium, free bo diagram (F.B.D.)	Knowledge a practical application	Tests a reports
8	4	Practical and theoretical	Equilibrium Conditions (2-D)	Knowledge and practical application	Tests and reports
9	4	Practical and theoretical	Equilibrium Conditions (3-D	Knowledge and practical application	Tests and reports
10	4	Practical and theoretical	Friction, Dry Friction	Knowledge and practical application	Tests and reports
11	4	Practical and theoretical	Center of Gravity, Centroid, Centroid of Simple area	Knowledge and practical application	Tests and reports

12	4	Practical and theoretical	Centroids of Composite are	Knowledge and practical application	Tests and reports
13	4	Practical and theoretical	Moment of inertia (Simple and Composite areas).	Knowledge and practical application	Tests and reports
14	4	Practical and theoretical	2-Dynamics type of motion, Linear motion with constant speed .	Knowledge and practical application	Tests and reports
15	4	Practical and theoretical	Linear motion with Constant acceleration.	Knowledge and practical application	Tests and reports

11. Course Evaluation
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 50 % and final mark 50% summation at last to get the final mark

12. Learning and Teaching Resources	
Required textbooks (curricular books, any)	https://dl.icdst.org/pdfs/files3/693ee77636940802091a54ec4f73a6.pdf?utm_source=chatgcom
Main references (sources)	https://engineeringstatics.org/?utm_source=ctgpt.com
Recommended books and references (scientific journals, reports...)	https://open.umn.edu/opentextbooks/textbos/1283?utm_source=chatgpt.com
Electronic References, Websites	https://www.engineer4free.com/statics.html?m_source=chatgpt.com

Course Description of Mechanics dynamic

1. Course Name:
Mechanics dynamic
2. Course Code:
METP121
3. Semester / Year:
Curriculum (15 weeks)\ First Level.
4. Description Preparation Date:
٦/7/2025
5. Available Attendance Forms:
Weekly Lecture Schedules (Theory and Practical), Discussions, Seminars, a

Assignments

6. Number of Credit Hours (Total) / Number of Units (Total)

٤ hours per week (٦٥ hours).

7. Course administrator's name (mention all, if more than one name)

Name: Ass.lec.Noor Abdulateef Ezzat
Email: noor.ae@ntu.edu.iq

8. Course Objectives

Course Objectives	Understand basic concepts of displacement, velocity, and acceleration. Analyze motion of particles and rigid bodies mathematicall and graphically. Solve problems involving linear and angular motion. Learn relative motion principles. Apply kinematics in mechanical system analysis.

9. Teaching and Learning Strategies

Strategy	((Theoretical lectures / discussion and dialogue / practical lecture field visits / seminars / laboratories / office activities / exam solutions / graduation project / summer training))

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١	4	Practical + theoretical	Newton's Second Law	Knowledge and practical application	Tests and reports
٢	4	Practical and theoretical	Curvilinear motion	Knowledge and practical application	Daily tests
٣	4	Practical and theoretical	Angular motion, Relative Motion.	Knowledge and practical application	Daily tests

4	4	Practical and theoretical	Work, Energy, Power	Knowledge and practical application	Daily tests+reports
5	4	Practical and theoretical	3-Strength of material: Fundamental concept, Loads Stress, Strain , Elasticity , Plasticity, Deformation .	Knowledge and practical application	Daily tests
6	4	Practical and theoretical	Hook's Law, Stress -strain curve, type of stress .	Knowledge and practical application	Daily tests
7	4		Normal stress due to an axial load on 1-Uniformam Cross section area 2- Variable cros section area .	Knowledge a practical application	Tests a reports
8	4	Practical and theoretical	Shear Stress	Knowledge and practical application	Tests and reports
9	4	Practical and theoretical	Torsional Stress	Knowledge and practical application	Tests and reports
10	4	Practical and theoretical	Thermal Stress	Knowledge and practical application	Tests and reports
11	4	Practical and theoretical	Beams, types of loads , types of beams .	Knowledge and practical application	Tests and reports
12	4	Practical and theoretical	Shear force (S.F.) & bendi moment (B.M.) of Simple supported beam under an – axial load .	Knowledge and practical application	Tests and reports
13	4	Practical and theoretical	Shear force (S.F.) & bending moment (B.M.) of Simple supported beam under uniform distributed Load .	Knowledge and practical application	Tests and reports

14	4	Practical and theoretical	Shear force (S.F.) & bendi moment (B.M.) of cantilever beam under an –axial load .	Knowledge and practical application	Tests and reports
15	4	Practical and theoretical	Shear force (S.F.) & bending moment (B.M.) of cantilever beam under uniform distributed Load .	Knowledge and practical application	Tests and reports

11. Course Evaluation
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 50 % and final mark 50% summation at last to get the final mark

12. Learning and Teaching Resources	
Required textbooks (curricular books, any)	https://www.engineeringtoolbox.com/kinemati -t_1141.html
Main references (sources)	https://www.pearson.com/us/higher-education/program/Beer-Vector-Mechanics-for Engineers-Dynamics-11th-Edition/PGM1140329.html
Recommended books and references (scientific journals, reports...)	http://hyperphysics.phy-astr.gsu.edu/hbase/kinemat.html
Electronic References, Websites	https://www.khanacademy.org/science/physic one-dimensional-motion

Course Description of Engineering Drawing 2 dimensions

1. Course Name:
Engineering Drawing 2 dimensions
2. Course Code:
METP126
3. Semester / Year:
Curriculum (15 weeks)\ First Level.
4. Description Preparation Date:
٦/7/2025
5. Available Attendance Forms:
Weekly Lecture Schedules (Theory and Practical), Discussions, Seminars, a Assignments
6. Number of Credit Hours (Total) / Number of Units (Total)
3 hours per week (45 hours).

7. Course administrator's name (mention all, if more than one name)
Name: Najm Abdullah Mulan Email: Najmmolan@ntu.edu.iq

8. Course Objectives	
Course Objectives	Develop students' skills in creating accurate and detail two-dimensional technical drawings using standa conventions and tools.

9. Teaching and Learning Strategies	
Strategy	((Theoretical lectures / discussion and dialogue / practical lectures field visits / seminars / laboratories / office activities / examp solutions / graduation project / summer training))

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Practical tutorials and tasks	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	Knowledge and practical application	Tests and reports
2	3	Practical tutorials and tasks	Preparation for drawing using the Title Block computer	Knowledge and practical application	Daily tests
3	3	Practical tutorials and tasks	Drawing geometric shapes using the computer	Knowledge and practical application	Daily tests
4	3	Practical tutorials and tasks	Graphic adjustments, CAD aids	Knowledge and practical application	Daily tests+reports
5	3	Practical tutorials and tasks	Graphic adjustments, CAD aids	Knowledge and practical application	Daily tests

6	3	Practical tutorials and tasks	Perspective drawing, a perspective drawing containi a circle represented by an ov	Knowledge and practical application	Daily tests
7	3	Practical tutorials and tasks	Perspective drawing, a perspective drawing containi a circle represented by an ov	Knowledge a practical application	Tests a reports
8	3	Practical tutorials and tasks	Perspective drawing, a perspective drawing containing a circle represented by an oval	Knowledge and practical application	Tests and reports
9	3	Practical tutorials and tasks	Perspective drawing, a perspective drawing containi a circle represented by an ov	Knowledge and practical application	Tests and reports
10	3	Practical tutorials and tasks	Projection theory, simplified projection	Knowledge and practical application	Tests and reports
11	3	Practical tutorials and tasks	Projection theory, simplified projection	Knowledge and practical application	Tests and reports
12	3	Practical tutorials and tasks	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.	Knowledge and practical application	Tests and reports
13	3	Practical tutorials and tasks	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.	Knowledge and practical application	Tests and reports

14	3	Practical tutorials and tasks	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.	Knowledge and practical application	Tests and reports
15	3	Practical tutorials and tasks	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.	Knowledge and practical application	Tests and reports

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 50 % and final mark 50% summation at last to get the final mark

12. Learning and Teaching Resources

Required textbooks (curricular books, any)	https://www.noor-book.com/%D9%83%D8%AA%D8%A7%D8%A-%D9%83%D8%AA%D8%A7%D8%A8-%D8%A7%D9%84%D8%B1%D8%B3%D9%85%D8%A7%D9%84%D9%87%D9%86%D8%ADD8%B3%D9%8A-pdf?utm_source=chatgpt.com
Main references (sources)	https://www.noor-book.com/%D9%83%D8%AA%D8%A7%D8%A-%D8%A7%D8%B3%D9%8A%D8%A7%D8%B3%D9%8A%D8%A7%D8%AA-%D9%88%D9%85%D8%A8%D8%A7%D8%ADD8%A6-%D8%A7%D9%84%D8%B1%D8%B3%D9%85%D8%A7%D9%84%D9%87%D9%86%D8%ADD8%B3%D9%8A-pdf?utm_source=chatgpt.com
Recommended books and references (scientific journals, reports...)	https://www.smartdraw.com/cad/cad-drawing.htm?srsltid=AfmBOoquZxatNDKkY1-_yZ7dmOAggEfyZ4xWTEmBwI5-Qvx-LzS6XN&utm_source=chatgpt.com
Electronic References, Websites	https://www.qcad.org/en/?utm_source=chatgpom

Course Description of Engineering Drawing ٣ dimensions

1. Course Name:

Engineering Drawing ٣ dimensions

2. Course Code:

METP127

3. Semester / Year:

Curriculum (15 weeks)\ First Level.

4. Description Preparation Date:

١/7/2025

5. Available Attendance Forms:

Weekly Lecture Schedules (Theory and Practical), Discussions, Seminars, a Assignments

6. Number of Credit Hours (Total) / Number of Units (Total)

3 hours per week (45 hours).

7. Course administrator's name (mention all, if more than one name)

Name: Najm Abdullah Mulan
Email: Najmmolan@ntu.edu.iq

8. Course Objectives

Course Objectives	Develop students' ability to create and interpret thre dimensional technical drawings using industry-standa methods and tools.

9. Teaching and Learning Strategies

Strategy	((Theoretical lectures / discussion and dialogue / practical lecture field visits / seminars / laboratories / office activities / exam solutions / graduation project / summer training))

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١	3	Practical tutorials and tasks	Draw the three principal projections with the even angle and note the difference between them.	Knowledge and practical application	Tests and reports

2	3	Practical tutorials and tasks	Draw the three principal projections with the even angle and note the difference between them.	Knowledge and practical application	Daily tests
3	3	Practical tutorials and tasks	Deduction of the third projection from the two projections	Knowledge and practical application	Daily tests
4	3	Practical tutorials and tasks	Deduction of the third projection from the two projections	Knowledge and practical application	Daily tests+reports
5	3	Practical tutorials and tasks	Deduce the perspective from two or three projections.	Knowledge and practical application	Daily tests
6	3	Practical tutorials and tasks	Deduce the perspective from two or three projections.	Knowledge and practical application	Daily tests
7	3	Practical tutorials and tasks	Cutting theory, cutting shape and lines by type of material, cutting projections.	Knowledge a practical application	Tests a reports
8	3	Practical tutorials and tasks	Cutting theory, cutting shapes and lines by type of material, cutting projections.	Knowledge and practical application	Tests and reports
9	3	Practical tutorials and tasks	A drawing of projections cut from one specific location	Knowledge and practical application	Tests and reports
10	3	Practical tutorials and tasks	A drawing of projections cut from one specific location	Knowledge and practical application	Tests and reports
11	3	Practical tutorials and tasks	Partially cut Muscat fee	Knowledge and practical application	Tests and reports
12	3	Practical tutorials and tasks	Partially cut Muscat fee	Knowledge and practical application	Tests and reports

13	3	Practical tutorials and tasks	Draw a half-cut cross section, draw zigzag sections.	Knowledge and practical application	Tests and reports
14	3	Practical tutorials and tasks	Draw a half-cut cross section draw zigzag sections.	Knowledge and practical application	Tests and reports
15	3	Practical tutorials and tasks	Draw a half-cut cross section, draw zigzag sections.	Knowledge and practical application	Tests and reports

11. Course Evaluation
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 50 % and final mark 50% summation at last to get the final mark

12. Learning and Teaching Resources	
Required textbooks (curricular books, any)	https://soaneemrana.com/onewebmedia/ENGI EERING%20DRAWING%20BY%20N.D%20BHA T.pdf
Main references (sources)	https://www.benardmakaa.com/wp-content/uploads/2023/01/3062.-Madsen-D.A.-Madsen-D.P.-Engineering-Drawing-Design.pdf
Recommended books and references (scientific journals, reports...)	https://www.freecad.org/
Electronic References, Websites	https://www.tinkercad.com/

Course Description of Electrical technology

1. Course Name:
Electrical technology
2. Course Code:
3. Semester / Year:
Curriculum (15 weeks)\ First Level.
4. Description Preparation Date:
٦/7/2025
5. Available Attendance Forms:
Weekly Lecture Schedules (Theory and Practical), Discussions, Seminars, a Assignments
6. Number of Credit Hours (Total) / Number of Units (Total)
3 hours per week (45 hours).

7. Course administrator's name (mention all, if more than one name)
Name:
8. Course Objectives

Course Objectives	Provide students with fundamental knowledge of electrical principles, circuits, and devices to understand and apply basic electrical systems i engineering

9. Teaching and Learning Strategies	
Strategy	((Theoretical lectures / discussion and dialogue / practical lectures field visits / seminars / laboratories / office activities / examp solutions / graduation project / summer training))

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Practical tutorials and tasks and theoretical lectures	First - the basics of electricity	Knowledge and practical application	Tests and reports
2	3	Practical tutorials and tasks and theoretical lectures	Electrical units and symbols, simple circuit, current strength of electric driving force.	Knowledge and practical application	Daily tests
3	3	Practical tutorials and tasks and theoretical lectures	Potential difference, Ohm's law, methods of connecting resistors (series, parallel, compound)	Knowledge and practical application	Daily tests
4	3	Practical tutorials and tasks and theoretical lectures	Practical examples of solving electrical circuits.	Knowledge and practical application	Daily tests+reports

5	3	Practical tutorials and tasks and theoretical lectures	Second: alternating (variable current	Knowledge and practical application	Daily tests
6	3	Practical tutorials and tasks and theoretical lectures	Methods for obtaining alternating current, types of electric power plants.	Knowledge and practical application	Daily tests
7	3	Practical tutorials and tasks and theoretical lectures	Sine wave, waveform of current with time, frequency, definition of effective value alternating current and voltag	Knowledge a practical applicati	Tests a reports
8	3	Practical tutorials and tasks and theoretical lectures	Knowledge of power factor and functions, applications and examples of the use of alternating current in practical life.	Knowledge and practical applicati	Tests and reports
9	3	Practical tutorials and tasks and theoretical lectures	Third: electromagnetism	Knowledge and practical applicati	Tests and reports
10	3	Practical tutorials and tasks and theoretical lectures	Magnetic field, field properties, magnetic properties, types of magnetic materials, definitions of (fiel density, field strength, magnetic momentum).	Knowledge and practical applicati	Tests and reports
11	3	Practical tutorials and tasks and theoretical lectures	The magnetic effect of electric current Applications to the use of the magnetic attraction force.	Knowledge and practical applicati	Tests and reports
12	3	Practical tutorials and tasks and theoretical lectures	Fourth: the alternating curren has three sides	Knowledge and practical applicati	Tests and reports

13	3	Practical tutorials and tasks and theoretical lectures	Single-sided alternating current, three-phase alternating current, faceted identification method, external overall wiring system.	Knowledge and practical applicati	Tests and reports
14	3	Practical tutorials and tasks and theoretical lectures	Star (Y) connection method, face current and line current from star, face voltage and li voltage from star, power in t case of a three-phase system, method for conducting electrical loads.	Knowledge and practical applicati	Tests and reports
15	3	Practical tutorials and tasks and theoretical lectures	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.	Knowledge and practical applicati	Tests and reports

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, this mark will be divided into sub mark 50 % and final mark 50% summation at last to get the final mark

12. Learning and Teaching Resources

Required textbooks (curricular books, any)	https://www.pearson.com/us/higher-education/program/Hambley-Electrical-Engineering-Principles-and-Applications-6th-Edition/PGM334840.html
Main references (sources)	https://www.allaboutcircuits.com/
Recommended books and references (scientific journals, reports...)	https://www.electronics-tutorials.ws/
Electronic References, Websites	https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-002-circui and-electronics-spring-2007/