نموذج وصف المقرر

1. اسم المقرر
التخمين والمواصفات والعقود
2. رمز المقرر
ATU16082
3. الفصل / السنة
سنوي/ 2026/2025
4. تاريخ اعداد هذا الوصف
1/10/2025
5. اشكال الحظور المتاحة
أسبوعيا / نظري
6. عدد الساعات الدراسية (الكلي)/عدد الوحدات (الكلي)
120 ساعة خلال 30 اسبوع – 6 وحدات
7. اسم مسؤول المقرر ادراسي
م.م مرزه كريم عمران Merzah.kareem@uomus.edu.iq

8. اهداف المقرر

اهداف المادة الدارسية	1- **فهم مبادئ التخمين لمختلف الأعمال الهندسية والحصول على المعرفة حول أنواع العقود والمواصفات.** **2- ادخال المواد الدراسية المحدثة علميا ودوليا في دراسة تخصص تكنلوجيا البناء والانشاءات.** **3- تحديث وفتح المختبرات من خلال تزويد ها بأحدث الاجهزة والمعدات التقنية بحقل الاختصاص وإدارتها بالفنيين المهرة.**

9. استراتيجيات التعليم والتعلم

الاستراتيجية	1.تشجيع مشاركة الطلبة في حل التمارين الخاصة بالمادة وكذلك في حلول المشاكل والمعوقات التي تحدث في ابنية الجامعة. 2. تشجيع الطلبة على تطبيق المعارف والتقنيات والمهارات والاجهزة الحديثة

	في الانشطة الهندسية على نطاق واسع 3. توسيع مفاهيم الطلبة على الزيارات الميدانية للابنية والمشاريع والتدريب في مكاتب التصميم ومصانع المواد الانشائية وورش الصيانة.

ج- الأهداف الوجدانية والقيمية

ج1- التعامل باحترام وود متبادل مع الطلبة والتدريسي.

2- السعي الى تذليل الصعوبات مع الطلبة بخصوص استيعاب المادة

ج3- مساعدة الطلبة بما يحتاجونه من استفسارات وايضاحات في الساعات المكتبية خارج المحاضرة.

د - المهارات العامة والتأهيلية المنقولة (المهارات الأخرى المتعلقة بقابلية التوظيف والتطور الشخصي).

د1- تأهيل الطلبة الى سوق العمل في القطاع العام او الخاص.

د2- تجهيز الطلبة بما يمكن من القدر الكافي من المعلومات للتعامل مع هذا النظام العالمي الجديد والنجاح فيه.

10- بنية المقرر

الاسبوع	الساعات	مخرجات التعلم المطلوبة	اسم الوحدةّ /او الموضوع	طريقة التعليم	طريقة التقيم
1	4	حضور الطلبة الى القاعة الدراسية اضافة الى PDF ,PPT,Video للاستفادة منها في فهم واستيعاب مادة التخمين والمواصفات والعقود الشاملة وكيفية تطبيقها في الحياة العملية.	Introduction: engineering projects & estimation, definition of estimation, benefits of estimation, factors affecting cost estimation.	حضوري	حضوري + امتحانات+ واجبات صفية

=	=	Types of estimation, practical examples on approximate estimations	=	4	2
=	=	General rules in quantitative survey: Principles in selecting units of measurement for items, various units and modes of measurement for different items of works, details of quantities measuring.	=	4	3
=	=	Rate analysis, factors affecting the cost of materials and labour, Plants and equipment -hour costs based on total costs and Outputs,	=	4	4
=	=	Overhead charges, rates for various items of construction of civil engineering works, problems and examples on rate analysis.	=	4	5
=	=	Methods of working quantities for various items of works, Measurement and abstract sheets and recording, excavation and fill works for wall footings,	=	4	6
=	=	Estimation of walls and other items of buildings up to D. P. C. level, methods used to calculate the length of various works:	=	4	7
=	=	Method of strips and center lines method, examples and problems.	=	4	8
=	=	Earthworks for various engineering projects: irrigation channels,	=	4	9

=	=	Roadway embankments, methods used for calculating earthwork quantities and volumes, Mass diagrams	=	4	10
=	=	Calculations of excavation volumes due to cut works (grid leveling method and triangular method), examples and problems.	=	4	11
=	=	Estimation of masonry works, basic units and materials used, Estimation of walls construction, damp proofing used,	=	4	12
=	=	Brick works, block works, stone works, examples and problems.	=	4	13
=	=	Estimation of concrete works, primary materials used, mixing of concrete materials, types of concrete mixers, calculating quantities of concrete materials, examples and problems.	=	4	14
=	=	Estimation of concrete works quantities for spread and combined footings	=	4	15
=	=	Estimation of concrete works quantities for lintels, beams, roofs, columns and stairs.	=	4	16
=	=	Estimation of form works quantities for lintels, beams, roofs, tie beams, columns and arches .	=	4	17
=	=	Reinforcement calculations for beams, roofs, columns and footings, specifications.	=	4	18

=	=	Finishing works: types, estimation of outside and inside finishing works, plastering, painting, brick and stone coating, glass works, specifications	=	4	19
=	=	Estimation of tiles works: tiles, mosaic, ceramic, porcelain, …etc, specifications.	=	4	20
=	=	Estimation of sanitary, sewage, plumbing and electrical works	=	4	21
=	=	Estimation of materials used in flexible and rigid pavements, estimation of curbstones used in curbs.	=	4	22
=	=	Estimation of materials used in industrial sheds and steel buildings, columns and base plates, beams and bearing plates, connections, floors and roofs.	=	4	23
=	=	Machines and equipment used in executing various works	=	4	24
=	=	Cost of owning and operating construction machines; depreciation, investment and operational costs. Profits, payment and indirect project costs	=	4	25
=	=	Technical specifications: definition, scope, resources and types of specifications .	=	4	26
=	=	Role of specifications in engineering project quality and estimated cost, technical	=	4	27

		specifications for various works.			
=	=	Computer-aided estimation, Using spread sheet applications and other software packages in estimation.	=	4	28
=	=	Valuation: Principles, purpose and function of valuation, Factors affecting the valuation of properties, Valuer and his duties.	=	4	29
=	=	Contracts: definition, types of contracts, Identification of rules, standards, related to the contracts of civil engineering works and related items, general and special conditions for civil engineering works	=	4	30

Course Description Form

1. Course Name:
Estimation, Specifications and Contracts
2. Course Code:
ATU16082
3. Semester / Year:
Annual / 2025\ 2026
4. Description Preparation Date:
1\10\2025
5. Available Attendance Forms:
Lectures in the presence of students (Online if necessary)
6. Number of Credit Hours (Total) / Number of Units (Total)
Number of Credit Hours /120/30 weeks /6Units
7. Course administrator's name (mention all, if more than one name)
Assist-Lect Merzah Kareem Imran Merzah.Kareem@uomus.edu.iq
8. Course Objectives

Course Objectives	1-Understanding the principles of estimation for various engineering works and gaining knowledge about contract types and specifications Teaching students how to use the engineering. 2-Introducing scientifically and internationally updated study materials in the study building and constructions technology. 3- Modernizing and opening laboratories by providing them with the latest technical equipment and equipment in the field of specialization and managing them with skilled technicians.

9. Teaching and Learning Strategies

Strategy	Teaching and Learning Strategies: 1-Encouraging student participation in solving exercises related to the subject, as well as in solving problems and obstacles that occur in university buildings. 2- Selects and applies modern knowledge, techniques, skills and devices in large-scale engineering activities. 3-Expanding students' concepts through field visits to civil engineering works, seminars, and training on maintenance works

	academically, emphasizing the importance of mastering such engineering software an its relevance in the job market. Teaching and Learning Methods •PDF materials •Video tutorials

10 - Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Students' attendance in the classroom in addition to PDFs for them to benefit from in understanding and comprehending the Estimation, Specification. And Contracts	Introduction: engineering projects & estimation, definition of estimation, benefits of estimation, factors affecting	In presence	presence+ Exams + class assignments

			cost estimation		
2	=	=	Types of estimation, practical examples on approximate estimation.	=	=
3	=	=	General rules in quantitative survey: Principles in selecting units of measurement for items, various units and modes of measurement for different items of works, details of quantities measuring.	=	=
4	=	=	Rate analysis, factors affecting the cost of materials and labor, Plants and equipment -hour costs based on total costs and Outputs	=	=
5	=	=	Overhead charges, rates for various items of construction of civil engineering works, problems and examples on rate analysis	=	=
6	=	=	Methods of working quantities for various items of works, Measurement and abstract sheets and recording, excavation and fill works for wall footings,	=	=
7	=	=	Estimation of walls and other items of buildings up to D. P. C. level, methods used to calculate the length of various works:	=	=

8	=	=	Method of strips and center lines method, examples and problems.	=	=
9	=	=	Earthworks for Various engineering projects: irrigation channels,	=	=
10	=	=	Roadway embankments, methods used for calculating earthwork quantities and volumes, Mass diagrams	=	=
11			excavation volumes due to cut works (grid leveling method and triangular method), examples and problems.	=	=
12	=	=	Estimation of masonry works, basic units and materials used, Estimation of walls construction, damp proofing used,	=	=
13	=	=	Brick works, block works, stone works, examples and problems.	=	=
14	=	=	Estimation of concrete works, primary materials used, mixing of concrete materials, types of concrete mixers, calculating quantities of concrete materials,	=	=

			examples and problems.		
15	=	=.	Estimation of concrete works quantities for spread and combined footings	=	=
16	=	=	Estimation of concrete works quantities for lintels, beams, roofs, columns and stairs	=	=
17	=	=	Estimation of form works quantities for lintels, beams, roofs, tie beams, columns and arches.	=	=
18	=	=	Reinforcement calculations for beams, roofs, columns and footings, specifications.	=	=
19	=	=	Finishing works: types, estimation of outside and inside finishing works, plastering, painting, brick and stone coating, glass works, specifications	=	=
20	=	=	Estimation of tiles works: tiles, mosaic, ceramic, porcelain, …etc., specifications.	=	=
21	=	=	Estimation of sanitary, sewage, plumbing and electrical works.	=	=
22	=	=	Estimation of materials used in flexible and rigid pavements, estimation of curbstones used in	=	=

			curbs.		
23	=	=	Estimation of materials used in industrial sheds and steel buildings, columns and base plates, beams and bearing plates, connections, floors and roofs.	=	=
24	=	=	Machines and equipment used in executing various works	=	=
25	=	=	Cost of owning and operating construction machines; depreciation, investment and operational costs. Profits, payment and indirect project costs.	=	=
26	=	=	Technical specifications: definition, scope, resources and types of specifications.	=	=
27	=	=	Role of specifications in engineering project quality and estimated cost, technical specifications for various works.	=	=
28	=	=	Computer-aided estimation, Using spread sheet applications and other software packages in estimation.	=	=
29	=	=	Valuation:	=	=

			Principles, purpose and function of valuation, Factors affecting the valuation of properties, Valuer and his duties.		
30	=	=	Contracts: definition, types of contracts, Identification of rules, standards, related to the contracts of civil engineering works and related items, general and special conditions for civil engineering works	=	=

1. 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

2. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1- تخمين ومواصفات الاعمال الأنشائية- المهندس غانم عبد الرحمن بكر 2- المواصفات الفنية العامة,المكتب الأستشاري في معهد التكنولوجيا – بغداد طبعة اولى , 1982
Main references (sources)	1- تخمين كميات المواد الانشائية- المهندس حبيب كامل عريبي- 2022 2- التخمين والمواصفات القياسية- د. لؤي محمد عباس الشذر- 2013 3- معدات الانشاء والتخمين والمواصفات-د.شامل عبد المجيد ود.غالب محسن
Recommended books and references (scientific journals, reports...)	1-Practical Standard Methods of Measurement Cost Estimating in the Design Stage, Hong-Kong, 2001,. 2-The civil engineering handbook / edited by W.F. Chen and J.Y. Richard Liew,2nd ed., by CRC press LLC, Ch. 1, Construction, 2003.
Electronic References, Websites	You Tube, Electronic websites