**Course description form**

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| 1. Course Name | | | | | | |
| Resistance of materials 2 / Strength of material | | | | | | |
| 1. Course code | | | | | | |
| WBM-22-03 | | | | | | |
| 1. Semester/year | | | | | | |
| Chapter J | | | | | | |
| 1. The date this description was prepared | | | | | | |
| 3/22/2024​ | | | | | | |
| 1. Available attendance forms | | | | | | |
| Weekly (theoretical) | | | | | | |
| 1. Number of study hours (total) / total number of units | | | | | | |
| 45 Theoretical hour / 3 units | | | | | | |
| 1. Name of the course administrator | | | | | | |
| Name: M. M. Natiq Aziz Imran  Email: nataq.az@uowa.edu.iq | | | | | | |
| 1. Course objectives | | | | | | |
| **Objectives of the study material:** | | | | The course aims to provide third - stage students with basic knowledge of the science of material resistance. Everything related to the influence of external loads, such as forces and moments, is studied  On the materials, stresses and deformations that occur in the materials.  The course also aims to enable students to gain access to the science of engineering design  By understanding how to perform correct engineering analysis and how to deal with laws  Equations, illustrations and other data.  And linking data together to reach outcomes and empower the student with the ability  On analysis, deduction and conclusion .  As well as a definition requester on Stress And emotion And stresses Thermal And focus  And he changed Stress with study Schemes power Shearing And determination Alhanaya with Stresses Main in Thresholds And the twist And benefit Of which As a basis in design And in area Jurisdiction. | | |
| 1. Teaching and learning strategies   **Course outcomes and teaching, learning and evaluation methods.**   1. **Cognitive goals**  * The possibility of the student obtaining skills through educational experience. * That the student realizes the importance of utilizing appropriate theoretical knowledge and technical skills to respond   For professional market requirements.  B- **Skill objectives related to the subject**   * Make the student able to plan and carry out scientific research work, evaluate the results, and draw conclusions   C- Emotional and value goals   * Leading human resources in accordance with professional and ethical standards. * Raising graduates on the principles of moral and financial integrity. * Urging students to work hard and consider themselves future leaders   D - General skills and transferable qualifications ( other skills related to employability and personal development .   * Enabling students to pass professional tests organized by local or international bodies .​​​ * Enabling students for continuous self - development after graduation. * Holding special workshops and courses for students for the purpose of self - development of the person accused . | | | | | | |
| 1. Course structure | | | | | | |
| the week | hours | Required learning outcomes | Name of the unit or topic | | Learning method | Evaluation method |

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| the first | 3 | Presentation of basic concepts | Basic Concepts , | Lectures presented in PDF format | Daily exams + homework + monthly exams |
| the second | 3 | Drawing shear and moment curves | shear force (SF) and bending moment (BM) diagrams(Method of Section) | Lectures presented in PDF format | Daily exams  +Homework assignments  +Monthly exams |
| the third | 3 | Drawing shear and moment curves and identifying areas of strength and weakness in beams | shear force (SF) and bending moment (BM) diagrams(Method of Section) | Lectures presented in PDF format | Daily exams  +Homework assignments  +Monthly exams |
| the fourth | 3 | Drawing shear and moment curves and identifying areas of strength and weakness in beams using diagrams | Drawing shear force (SF) and bending moment (BM) diagrams by Graphical Method | Lectures presented in PDF format | Daily exams + homework + monthly exams |
| Fifth | 3 | Drawing shear and moment curves and identifying areas of strength and weakness in beams using diagrams | Drawing shear force (SF) and bending moment (BM) diagrams by Graphical Method | Lectures presented in PDF format | Daily exams + homework + monthly exams |
| VI | 3 | Stresses in Beams | Stresses in Beams | Lectures presented in PDF format | Daily exams + homework + monthly exams |
| Seventh | 3 | Composite Beams | Composite Beams | Lectures presented in PDF format | Daily exams + homework + monthly exams |
| VIII | 3 | Transformed-Section Method (Alternative Method - Equivalent Area) | Transformed-Section Method (Alternative Method - Equivalent Area) | Lectures presented in PDF format | Daily exams + homework + monthly exams |
| Ninth | 3 | Shear Stresses in Beams | Shear Stresses in Beams | Lectures presented in PDF format | Daily exams + homework + monthly exams |
| The tenth | 3 | Shear Stresses in Beams | Shear Stresses in Beams | Lectures presented in PDF format | Daily exams + homework + monthly exams |

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| 1. Course evaluation | |
| * Daily exams with practical and scientific questions . * Participation marks for difficult competition questions among students. * Assigning grades to homework assignments and reports assigned to them. * and monthly exams for the curriculum, in addition to end-of-semester exams . | |
| 1. Education and teaching resources | |
| Required prescribed books | Strength of Materials  Third and Fourth Edition .  • Ferdinand and L.Singer Andrew Pytel |
| Main references | * + - College library to obtain additional sources for the curriculum.     - Check scientific websites to see recent developments in the subject |
| Recommended books and supporting references | Follow scientific websites to see the latest developments in the prescribed material For third year students .   * Web Course: Strength of Materials * Dr. Satish C Sharma (IITR) * Web Page: http://www.nptel.iitm.ac.in/courses/Webcourse-contents/IITROORKEE/ * strength%20of%20materials/homepage.htm * Web Course: Structural Analysis II - * LS Ramachandra & SK Barai (IITKGP) * Web Page: http://www.nptel.iitm.ac.in/courses/Webcoursecontents/   IIT%20Kharagpur/Structural%20Analysis/New\_index1.html |