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| **TEMPLATE FOR COURSE SPECIFICATION**   |  | | --- | | HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW |   **COURSE SPECIFICATION**   |  | | --- | | This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification. |      |  |  | | --- | --- | | Collage of Engineering  University of Baghdad | ***1. Teaching Institution*** | | Electromagnetic Field Theory  (EFT) | ***2. University Department/Centre*** | | Electromagnetic Field Theory  /EE206  The course is designed for university students and to get more knowledge about Electromagnetic field theory that have special cases and more practical situations. The course has 30 lessons. Each lesson is designed to learn the key concept of the subject of electromagnetic theory.  To learn the students the basic components in Electric field , Electric flux, Electric displacement, magnetic field, magnetic flux, and Maxwell’s equations.  3 theories and 1 tutorial. | ***3. Course title/code & Description*** | | Electrical Engineering (EE) | ***4. Programme(s) to which it Contributes*** | | Annual system ;there is only one mode of delivery , which is a "Day Program". The students are full time students , and on campus .They attend full day program in face-to-face mode. The academic year is composed of 30- week regular subjects. | ***5. Modes of Attendance offered*** | | 1st & 2st / Academic Year 2016-2017 | ***6. Semester/Year*** | | 90 hrs. / 3 hrs. per week | ***7. Number of hours tuition (total)*** | | April -18 /2015 | ***8. Date of production/revision of this specification*** | | ***9. Aims of the Course*** | | | To learn the students the basic components in Electric field , Electric flux, Electric displacement, magnetic field, magnetic flux, and Maxwell’s equations.  The course has 30 lessons. Each lesson is designed to learn, develop and analyze new forms of solid state physics.   1. How to relate the skills and concepts learned from vector analysis to solve Electric and magnetic fields. 2. How to use the learned skills to understand, and analyzed the Maxwell’s equations. 3. Representation of an interaction of electric field and magnetic field with the matter. | |  |  | | --- | | ***10·*** ***Learning Outcomes*** | | Upon Completion of this course the students will acquire the following skills:  1. An ability to read and comprehend the effects of Electric field and magnetic field.  2. An ability both to follow and correctly to analyze the electromagnetic field interaction with the help of boundary condition.  3. An understanding of physical behavior of electric and magnetic field in the matter. | | ***11.*** ***Teaching and Learning Methods*** | | 13.Lectures.  14.Tutorials.  15.Homework and Assignments.  16.Tests and Exams.  17.In – Class Questions and Discussions.  18. Connection between Theory and Application.  19. Extracurricular Activities.  20. Seminars.  21.In-and Out-Class oral conservations.  22. Reports, Presentations, and Posters. | | ***12. Assessment Methods***  1. Examinations, Tests ,and Quizzes.  2. Extracurricular Activities.  3. Students Engagement during Lectures.  4. Responses Obtained from Students Questionnaire about Curriculum and Faculty Member (Instructor). | | ***13. Grading Policy***  1. Quizzes:  - There will be at least seven closed books and notes quizzes during the academic year.  -The quizzes will count 25% of the total course grade.  2. Oral assessment:  - The students are encouraged to participate their ideas to solve the problems during the lecture.  - The Seminar will count 5% of the total course.  3. Final Exam:  - The final exam will be comprehensive, closed books and notes, and will take three hours from 9:00 – 12:00 AM.  - The final exam will count 70% of the total course grade.  **Grading Units**   |  |  | | --- | --- | | Quizzes (1st and 2nd Semester) | 30% | | Final Exam | 70% | | Total | 100% | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | ***14. Course Structure*** | | | | | | | Assessment Method | Teaching Method | Unit/Module or  Topic Title | Los  (Article 10) | Hours | Week | | 1-4 of article (12) | 1-12 of article (11) | Vector Analysis | a,1,m,n,o.p,q,r | 4  3 the.  1 tut. | 1 | | 1-4 of article (12) | 1-12 of article (11) | Rectangular Coordinate System | a,1,m,n,o.p,q,r | 4  3 the.  1 tut | 2 | | 1-4 of article (12) | 1-12 of article (11) | Cylindrical Coordinates and Spherical Coordinate Systems | b,1,m,n,o.p,q,r | 4  3 the.  1 tut | 3 | | 1-4 of article (12) | 1-12 of article (11) | Coulomb’s Law and Electric  Field Intensity | b,1,m,n,o.p,q,r | 4  3 the.  1 tut | 4 | | 1-4 of article (12) | 1-12 of article (11) | Field of a Line Charge and Field of a Sheet of Charge | b,1,m,n,o.p,q,r | 4  3 the.  1 tut | 5 | | 1-4 of article (12) | 1-12 of article (11) | Electric Flux Density and Gauss’s Law | b,1,m,n,o.p,q,r | 4  3 the.  1 tut | 6 | | 1-4 of article (12) | 1-12 of article (11) | Application of Gauss’s Law: Differential  Volume Element | b,1,m,n,o.p,q,r | 4  3 the.  1 tut | 7 | | 1-4 of article (12) | 1-12 of article (11) | The Vector Operator ∇ and the Divergence  Theorem | b,1,m,n,o.p,q,r | 4  3 the.  1 tut. | 8 | | 1-4 of article (12) | 1-12 of article (11) | Energy Expended in Moving a Point Charge in  an Electric Field | b,1,m,n,o.p,q,r | 4  3 the.  1 tut. | 9 | | 1-4 of article (12) | 1-12 of article (11) | The Line Integral | b,1,m,n,o.p,q,r | 4  3 the.  1 tut. | 10 | | 1-4 of article (12) | 1-12 of ar  ticle (11) | The Potential Field of a Point Charge | c,1,m,n,o.p,q,r | 4  3 the.  1 tut. | 11 | | 1-4 of article (12) | 1-12 of article (11) | Potential Gradient and The Electric Dipole | c,1,m,n,o.p,q,r | 4  3 the.  1 tut. | 12 | | 1-4 of article (12) | 1-12 of article (11) | Electronic structures of elements | c,1,m,n,o.p,q,r | 4  3 the.  1 tut. | 13 | | 1-4 of article (12) | 1-12 of article (11) | Current and Current Density | c,1,m,n,o.p,q,r | 4  3 the.  1 tut. | 14 | | 1-4 of article (12) | 1-12 of article (11) | Conductor Properties and Boundary  Conditions | c,1,m,n,o.p,q,r | 4  3 the.  1 tut. | 15 | | 1-4 of article (12) | 1-12 of article (11) | Boundary Conditions for Perfect  Dielectric Materials | d,1,m,n,o.p,q,r | 4  3 the.  1 tut. | 16 | | 1-4 of article (12) | 1-12 of article (11) | Capacitance Defined | d,1,m,n,o.p,q,r | 4  3 the.  1 tut. | 17 | | 1-4 of article (12) | 1-12 of article (11) | Poisson’s and Laplace’s Equations | d,1,m,n,o.p,q,r | 4  3 the.  1 tut. | 18 | | 1-4 of article (12) | 1-12 of article (11) | Examples of the Solution of Laplace’s  Equation | e,1,m,n,o.p,q,r | 4  3 the.  1 tut. | 19 | | 1-4 of article (12) | 1-12 of article (11) | Biot-Savart Law | e,1,m,n,o.p,q,r | 4  3 the.  1 tut. | 20 | | 1-4 of article (12) | 1-12 of article (11) | Amp`ere’s Circuital Law | f,g,1,m,n,o.p,q,r | 4  3 the.  1 tut. | 21 | | 1-4 of article (12) | 1-12 of article (11) | The Scalar and Vector Magnetic  Potentials | h,i,1,m,n,o.p,q,r | 4  3 the.  1 tut. | 22 | | 1-4 of article (12) | 1-12 of article (11) | Force on a Moving Charge | H,I,1,m,n,o.p,q,r | 4  3 the.  1 tut. | 23 | | 1-4 of article (12) | 1-12 of article (11) | Force and Torque on a Closed Circuit | H,i,1,m,n,o.p,q,r | 4  3 the.  1 tut. | 24 | | 1-4 of article (12) | 1-12 of article (11) | Magnetization and Permeability | j,1,m,n,o.p,q,r | 4  3 the.  1 tut. | 25 | | 1-4 of article (12) | 1-12 of article (11) | Inductance and Mutual Inductance | j,1,m,n,o.p,q,r | 4  3 the.  1 tut. | 26 | | 1-4 of article (12) | 1-12 of article (11) | Faraday’s Law. | j,1,m,n,o.p,q,r | 4  3 the.  1 tut. | 27 | | 1-4 of article (12) | 1-12 of article (11) | Maxwell’s Equations in Point Form | k,1,m,n,o.p,q,r | 4  3 the.  1 tut. | 28 | | 1-4 of article (12) | 1-12 of article (11) | Maxwell’s Equations in Integral Form | k,1,m,n,o.p,q,r | 4  3 the.  1 tut. | 29 | | 1-4 of article (12) | 1-12 of article (11) | The Retarded Potentials | k,1,m,n,o.p,q,r | 4  3 the.  1 tut. | 30 |  |  |  |  | | --- | --- | --- | | ***15. Infrastructure*** | | | | **Textbook**  The book we used to teach Electromagnetic Field Theory to second year students in the Electrical Engineering Department is Engineering Electromagnetics 8th Edition William H. Hayt **References** we used references such as  Engineering Electromagnetics 8th Edition William H. Hayt and Electromagnetic field theory by Bakshi. | Required reading:  · CORE TEXTS  · COURSE MATERIALS  · OTHER | | | * Available websites related to the subject. * Extracurricular activities. | Special requirements (include for example workshops, periodicals, IT software, websites) | | | * Field and scientific visits. * Extra lectures by foreign guest lecturers. | Community-based facilities  (include for example, guest  Lectures , internship , field studies) | | | ***16. Admissions*** | | | | EE206 Course | | Pre-requisites | | / | | Minimum number of students | | 100 | | Maximum number of students | | **1 INSTRUCTOR**  Assist. Prof. (PhD.): Dr. Mohammed Nadhim Abbas  Electrical Engineering Department  Collage of Engineering  University of Baghdad  Tel: 00964-7712343590  E-mail:dr.mohammed.almosawi@gmail.com | | ***17. Course Instructors*** |   . |