



موضوعات امتحان القبول لدرجتى الماجستير والدكتوراة
بقسم الهندسة الانشائية



Seminar Topics in Structural Engineering

(a) Theory of Structures

1. Performance-based design of bridges and buildings, including tall buildings;
2. Collapse simulation studies for reinforced concrete buildings;
3. Seismic rehabilitation of buildings and bridges;
4. Applications and modeling of components and systems constructed with composite materials;
5. Behavior of RC Structures subjected to blasting;
6. Finite element model for double composite beam;
7. Improvement and retrofitting of existing buildings;
8. Static and dynamic analysis of cable-stayed bridges, suspension-bridges, and cable nets subjected to wind and earthquakes;
9. Dynamic Collapse Simulation of RC Frame under Extreme Earthquake Loadings;
10. Progressive Collapse in Reinforced Concrete Buildings;
11. Structural System Selection Using Performance-Based Design;
12. Failure Mechanism of Column Components and Systems of Bridges;
13. Effects of Local Damage on Global Seismic Response of Bridge;
14. Post-Tensioned Structural Concrete Bridge Piers;
15. Seismic Performance of Reinforced Concrete Bridge Columns Subjected to Combined Loading Including Torsion.

الامتحان عبارة عن عرض تقديمي (power point) لا يزيد عن 15 دقيقة
ثم يتم سؤال الطالب فيما قدمه من خلال لجنة الامتحان بالقسم





موضوعات امتحان القبول لدرجتى الماجستير والدكتوراة
بقسم الهندسة الانشائية



Seminar Topics in Structural Engineering

(b) Concrete Structures

16. Design principles for structural quality;
17. Design for robust structures;
18. Role of conceptual design;
19. Design of reinforced concrete dapped end;
20. Design of reinforced concrete shallow beams with openings;
21. Design of reinforced concrete deep beams with openings;
22. Design of reinforced concrete beam-column connections;
23. Design of end block of prestressed concrete beams;
24. Design of reinforced concrete construction joints;
25. Design of reinforced concrete corbels;
26. Design of pile caps;
27. Design of reinforced concrete ledge beams;
28. Tracing flow of forces in reinforced concrete discontinuity regions;
29. Restrained stresses in reinforced concrete structures;
30. Modeling of temperature variation in deep reinforced concrete members;
31. Design of reinforced concrete water structures;
32. Analysis and design of R/C surfaces of revolutions;
33. Design and analysis of R/C cylindrical shells;
34. Analysis and design of R/C stairs;
35. Flexural analysis of prestressed concrete beams;
36. Serviceability limit states of reinforced concrete;
37. Principles of reliable seismic design;
38. Design for earthquakes using static equivalent lateral force method;
39. Design of beam-column connections of R/C frames in seismic regions





موضوعات امتحان القبول لدرجتى الماجستير والدكتوراة
بقسم الهندسة الانشائية



Seminar Topics in Structural Engineering

(c) Steel Structures

- 40. Types of Steel Structures;
- 41. Design of Steel Truss Elements;
- 42. Composite Steel Structures;
- 43. Mero System;
- 44. Types of Steel Connections;
- 45. Cold Formed Steel Structures;
- 46. Analysis of Steel-Concrete Composite Beams;
- 47. Design of Steel Elements Subject to Axial Compression and Bending;
- 48. Analysis of Steel Base Connections;
- 49. Analysis and Design of Composite Steel Columns and Beams

(d) Soil Mechanics and Foundation Engineering

- 50. Soil classification;
- 51. Stresses in soil;
- 52. Soil Settlement;
- 53. Soil Shear strength;
- 54. Soil Compaction;
- 55. Earth pressure;
- 56. Slope stability in soil;
- 57. Soil Bearing capacity;
- 58. Shallow foundation;
- 59. Deep foundation;
- 60. Sheet piles



موضوعات امتحان القبول لدرجتي الماجستير والدكتوراة
بقسم الهندسة الانشائية



Seminar Topics in Structural Engineering

(e) Strength of Material

61. Geopolymer concrete;
62. Self-compacting concrete;
63. High-performance concrete;
64. Ultra-high-performance concrete;
65. Self-healing concrete;
66. Lightweight concrete;
67. Eco-efficient concrete;
68. Nano-technology in construction;
69. Corrosion of steel in concrete;
70. Sustainability of concrete;
71. Durability of concrete;
72. Fibre-reinforced concrete;
73. Admixtures;
74. Non-destructive Tests;

(f) Construction Project Management

75. Types of project contracts;
76. Project planning and scheduling;
77. Project control and Earned value;
78. Contract cash flow;
79. Line of balance;
80. Time cost Trade off;
81. Value engineering;
82. Risk management;
83. Procurement strategies;
84. Sustainability and green construction;
85. Building information modeling

