

Teoretický program

(rešerše z Internetu, odborných časopisů, monografií)

Požadavky na vypracování semestrální práce:

Rozsah: min. 4 až 5 stran, max. 10 stran; zpracování ve Wordu, velikost písma 11, řádkování jednoduché, okraje 2,5 cm, písmo Times New Roman, zarovnání oboustranné, tabulky a obrázky vloženy přímo v textu v dobré kvalitě, při vkládání obrázků do textu-formát JPG. Pod každý obrázek uvést jeho popis zároveň s jeho očíslováním. Popis tabulek s očíslováním se uvádí nad tabulkou. Pokud bude čerpáno z cizojazyčné literatury, nutné odevzdat práci v dobrém překladu do češtiny. **Nutno uvést odkazy na internetovou adresu nebo odbornou literaturu (dle ISO normy)!** Práce se odevzdává jak v tištěné (možný tisk 2 stránky na A4), tak v elektronické formě (soubor DOC či RTF) (disketa, CD nebo USB flash) do konce letního semestru.

Cca 1/3 celého textu bude převzata (např. z internetu nebo zahraniční publikace) **v anglickém jazyce** a bude použita pro překlad do češtiny. Originální anglický text se zařadí na konec dokumentu jako příloha mimo stanovený rozsah stran seminární práce.

Bodování: max. 15 bodů, za nedodržení tématu – práce bude buď vrácena (před ukončením semestru), nebo sníženo bodování o –5 bodů (v případě odevzdání po zápočtovém týdnu), za nedodržení požadavků na úpravu (vč. gramatických chyb) a značení obrázků, tabulek a literatury v textu: –1 až –5 bodů, za principiální technické a fyzikální chyby –1 až –5 bodů.

Téma	Jméno studenta, skupina
1. Ge as an electronic material	
2. Development, properties and application of doped fullerenes	
3. Magnetic materials based on Rare Earth metals (properties, materials, applications)	
4. Chemical sensors for automotive application (properties, materials, applications)	
5. Hydrogen storage materials (properties, technology, applications)	
6. Magnetoresistive materials (properties, materials, applications)	
7. Electrical conductor materials (properties, metal and alloy materials, applications)	
8. Electrical contact alloy (Au-Ag-Ni, Au-Ag-Pt,...) (properties, applications)	
9. Tantalum for electronics (properties, technology, applications)	
10. Copper-beryllium alloys for electrical using (properties, applications)	
11. Diamond as an electronic material	
12. Electrical resistance materials (metallic, alloys and non-metallic, properties, applications)	
13. High-temperature superconductors (properties, materials, applications)	
14. Low-temperature superconductors (properties, materials, applications)	
15. Superconducting wires and cables (properties, materials, technologies, applications)	
16. Gaseous dielectrics and electrical insulations (properties, materials, applications)	
17. Solid dielectrics and electrical insulations (properties, materials, applications)	
18. Organic dielectrics and electrical insulations (properties, materials, applications)	
19. Anorganic dielectrics and electrical insulations (properties, materials, applications)	
20. Ferrite magnets (properties, manufacturing methods, materials, applications)	
21. Silicides as electronic materials (properties, materials, applications)	
22. Optical memory materials (principles, properties, materials, applications)	
23. Advanced hard magnetic materials (properties, materials, applications)	
24. Advanced soft magnetic materials (properties, materials, applications)	
25. Materials for magnetic recording (properties, materials, applications)	
26. Magnetic materials for domestic applications (properties, materials, applications)	

27. Organic and inorganic light emitting diodes (principles, materials, applications)	.....
28. Thermoelectric materials (properties, materials, applications)	.....
29. Photovoltaic cells based on inorganic materials (properties, materials, applications)	.....
30. Photovoltaic cells based on organic materials (properties, materials, applications)	.....
31. Metal glasses in electrical engineering (properties, materials, applications)	.....
32. Solder and brazing materials with emphasis on Pb-free materials (properties, materials, applications)	.....
33. Noble metals in electrical engineering (properties, materials, applications)	.....
34. Amorphous materials in electrical engineering (properties, materials, applications)	.....
35. Epitaxy technologies (fundamentals, importance in microelectronics)	.....
36. Doping and impurity elements in semiconductors (behaviour, atomic bonding)	.....
37. Nanomaterials in electrical engineering (properties, materials, applications)	.....
38. Semiconductor compounds based on GaAs (properties, materials, applications)	.....
39. Semiconductor compounds based on CdTe (properties, materials, applications)	.....
40. Liquid crystals (properties, materials, applications)	.....
41. Semiconductor compounds based on GaP (properties, materials, applications)	.....
42. Semiconductor compounds based on A ^{II} B ^{VI} (properties, materials, applications)	.....
43. Lead-free solders for automotive industry (temperature melting 220 – 350 °C)	.....
44. Materials for photodiodes and phototransistors	.....
45. Materials for photoelectrical resistors	.....
46. Materials for piezo-transistors and microphones	.....
47. Materials for detectors of X-ray radiation	.....
48. Materials for infrared detectors	.....
49. Materials for heat exchangers	.....
50. Diffusion in electrical engineering	.....
51. Semiconductor materials for thermo-electrical exchange	.....
52. Graphite, properties, application in electric engineering	.....
53. SiO ₂ – properties, application in electric engineering	.....
54. Organic materials for insulators	.....
55. Synthetic organic materials for insulators	.....
56. Aluminium, its alloys and compounds - properties, application in el.eng	.....
57. Gallium, its alloys and compounds - properties, application in el.eng.	.....
58. Rare-earth metals, alloys and compounds - properties, application in el.eng.	.....
59. Materials for high-beam bulbs	.....
60. Materials for discharge lamps	.....
61. Materials for laser generators (solid state crystals)	.....
62. Materials for laser generators (gas state)	.....
63. Materials for LED and LD laser diodes	.....
64. Materials for optical-fibre waveguides	.....
65. Materials for bimetals	.....
66. Materials for electrical fuses	.....
67. Iron, its alloys and compounds - properties, application in el.eng	.....
68. Cobalt & nickel, alloys and compounds - properties, application in el.eng	.....

69. Niobium, its alloys and compounds - properties, application in el.eng	.....
70. Tungsten & molybdenum alloys and compounds - properties, application in el.eng.	.....
71. Gold, its alloys and compounds - properties, application in el.eng.	.....
72. Silver, its alloys and compounds - properties, application in el.eng.	.....
73. Platinum, its alloys and compounds - properties, application in el.eng.	.....
74. Rhenium, its alloys and compounds - properties, application in el.eng.	.....
75. Titanium, its alloys and compounds - properties, application in el.eng.	.....
76. Zinc, its alloys and compounds - properties, application in el.eng.	.....
77. Antimony, its alloys and compounds - properties, application in el.eng.	.....
78. Lead, its alloys and compounds - properties, application in el.eng.	.....

Vysoká škola báňská – Technická univerzita Ostrava
Fakulta elektrotechniky a informatiky (písmo12)

Semestrální práce (písmo 16)

Předmět: Elektrotechnické materiály (písmo 14)

Téma č.: (písmo 14)

Název: (česky, pod to anglicky) (písmo 16)

Ostrava, datum

Jméno a příjmení

(písmo12)

St. skupina