Development of educational manual “Construction and manufacture technology of information registration equipment”

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Abstract – educational manual development materials are given. This manual is devoted to study of normative discipline by students of “Telecommunications” and “Acoustic technique” chairs.

Keywords – Telecommunications, Acoustic Technique, Audio-visual Information, Construction.

I. INTRODUCTION

On the sound technique and information registration chair (ST and IR) of the electronics faculty in National technical university of Ukraine “KPI” students of “Telecommunications” and “Acoustic technique” educational branches are given discipline “Construction and manufacture technology of information registration equipment”. Analysis of educational literature sources has showed that in Ukraine [1], Russia [2] and in countries of near [3] and far [4] foreign countries after 1975-1980 years there were no textbooks and manuals devoted to these problems. That is why such educational manual is up-to-date and actual.

II. CONTENTS OF EDUCATIONAL MANUAL

Educational manual consists 3 books.

Book 1 INFORMATION REGISTRATION EQUIPMENT, it consists of 4 chapters and devoted to description of information registration equipment (IRE) that are designed with using all main methods of audio-visual, analog and digital video information registration. Chapter 1 covers material for examination of devices and systems collected with using optical and mechanical registration method and representation of static pictures with chemical fixation of information carrier (photo); optical and mechanical devices and systems of registration (recording) and representation (projection) of motion pictures (cinema).

Chapter 2 contains material with description of IRE that use electromagnetic method of registration: devices of audio and video recording of picture signals (video recorders, video cameras); IRE that use electromagnetic method of sound and picture registration on magnetic discs (hard drives and flexible 3,5”).

Chapter 3 devoted to optical systems of audiovisual static and motion information registration. They are optical-laser, magnetic-optical, electronic-optical registration systems; photo-electrostatic systems of visual information registration (Xeroxes), laser print technologies; cinema and television systems of audio and video information registration (recording on the tape by using three-color tubes); technique of recording and television transition of pictures on movie tape by electronic beam; television and cinema projectors on the devices with charge connection.

In Chapter 4 educational material on IRE with high definition, IRE with thermoplastic, holographic, etc methods of information registration are given.

Book 2 CONSTRUCTION contains 10 chapters. There is information on stages of construction development; various constructional documents; technical parameters and service conditions; service parameters (mechanical and weather actions); selection of materials and coverings according to service conditions; precise IRE construction; ways of constructional execution (base, functional-blocking, module); methods of professional IRE creation; methods of special IRE creation; methods of everyday IRE and metrological equipment creation; features of engine designing; basics of interchanging (tolerances, assembling) in this book.

Book 3 MANUFACTURE TECHNOLOGY contains 7 chapters. It has information on manufacture technology of IRE parts; methods of blade treatment; milling, gear milling, chiseling, drilling, stitching, abrasive treatment methods; circle and flat grinding; threading and gear milling, coordinate and profile grinding; sharpening and cutting; founding technology (ground, chill mould founding, under pressure founding; model founding); stamping technology (cold and hot stamping); plastics manufacture by pressing technology (thermoplastic and thermo reactive plastic); technology of electroerosing work (electro sparks treatment, ultrasound treatment); technology of work receiving and checking. There is also information on construction and manufacture technology of printed circuit cards.

III. CONCLUSION

Educational manual is creating in compliance with requests to manuals for higher educational establishments that accepted study conditions formed in Bologna process. There is additional information with conclusions: what student must understand, memorize and be able to do after each paragraph. In the end of each chapter there is information on exercises and problems that student must solve individually for passing tests.

REFERENCES

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