MAIN RELIABILITY INDICATORS

Pasichnyk Oleksandr
Ph.D., Associate Professor
Khmelnytskyi National University
Khmelnytskyi, Ukraine

Introductions. The nomenclature of reliability indicators should be understood as the composition of indicators necessary and sufficient for characterizing the object and solving the task. The nomenclature of reliability indicators is selected taking into account the type of product, consequences of failure and other factors.

Aim. Reliability indicators are usually classified according to the following features - by the reliability properties they characterize (failure-free indicators, durability indicators, preservation indicators, maintainability indicators); by the number of properties they characterize (single, complex); by the number of objects they characterize (group, individual, mixed).

Materials and methods. Reliability indicators are divided into those determined by working hours and calendar duration. The first are used in cases when the properties of the products change only during direct functioning (work) and the working life is taken into account; the second - when the properties of the objects change during the entire period of operation and the working life is not taken into account.

Failure rates characterize the object's ability to continuously maintain its operational state for a certain period of time or a certain period of operation. The main indicators of failure-free operation include the probability of failure-free operation, the intensity of failures, the average working time before failure, the gamma-percentage working time before failure, the working time before failure, the established working time before failure. To characterize the reliability of renewable objects, when considering the period before the first failure, the same indicators as for non-renewable objects should be used. Specific indicators of failure-free operation of restored objects are - average working time per failure, failure flow parameter,

average time of object-free operation, probability of failure of the object during the given time of operation.

Durability indicators characterize the object's resource or service life. The main indicators of durability include - gamma-percentage resource, average resource, gamma-percentage service life, average service life, assigned resource, established resource, resource.

The preservation indicators include - gamma-percentage shelf life, average shelf life, established shelf life, shelf life.

The indicators of maintainability include - the probability of recovery at a given time, the average recovery time, the intensity of recovery, the set recovery time.

Complex indicators of reliability include non-stationary coefficient of operational readiness, coefficient of operational readiness in stationary mode, coefficient of technical use.

Results and discussion. The nomenclature of reliability indicators defines the composition of indicators necessary and sufficient for characterizing the object and solving the task. The nomenclature of reliability indicators is selected taking into account the type of product, consequences of failure and other factors.

Conclusions. Reliability indicators are usually classified according to the following characteristics - according to their reliability properties; by the number of properties they characterize; by the number of objects that they characterize.

LITERATURE

1. Основи об‘єктно-орієнтованого програмування: навч. посіб. для студ. ВНЗ / Сорокатий Р.В., Пасічник О.А., Скрипник Т.К. – Хмельницький: ХНУ, 2019. – 175 с.

2. Надійність систем: Лабораторний практикум для студентів спеціальності "Комп’ютерні науки" / О.А. Пасічник, Р.В. Сорокатий, Т.К. Скрипник. – Хмельницький: ХНУ, 2019. – 154 с.

3. Технології комп’ютерного проектування : конспект лекцій для здобувачів вищої освіти (ОР «бакалавр») спеціальності 122 «Комп’ютерні науки» / О.А. Пасічник, Р.В. Сорокатий, , Т.К. Скрипник, Е.А. Манзюк. – Хмельницький: ХНУ, 2021 . – 136 с.

4. Технології комп’ютерного проектування. Лабораторний практикум: для студентів спеціальності "Комп’ютерні науки та інформаційні технології" / О.А. Пасічник, Р.В. Сорокатий, Т.К. Скрипник. – Хмельницький: ХНУ, 2018. – 136 с.

5. Обробка даних на ЕОМ. Лабораторний практикум для студентів спеціальності "Міжнародна інформація" / О.А. Пасічник. – Хмельницький: ХНУ, 2004. – 100 с.

6. Основи систем автоматизованого проектування : лабораторний практикум для студентів напряму підготовки “Інженерна механіка” / О.А. Пасічник. – Хмельницький : ХНУ, 2015. – 61 с.

7. Емпіричні методи програмної інженерії: лабораторний практикум для студентів напряму підготовки "Програмна інженерія" / О.А. Кравчук, О.А. Пасічник. – Хмельницький : ХНУ, 2013. – 90 с.