ABSTRACT: With the purpose of improving library technology, the following research criteria and methods in a variety of issues concerning serials, one of the core elements of library automation technology, are suggested and its database building as follows:

First, examine domestic and international publication indices & abstracts journals for better understanding of the publication process and theoretical background in serials databases. Second, select representative article databases from domestic and international serials for comparison and analyses of the core elements to clarify concrete issues in library technology as well as deciding major and minor components and their entry order for bibliographic data. Third, analyze bibliographic descriptive format concerning articles of serials in ISO 690 & ISO 690-2 to determine potential applicability of article database. Fourth, establish standards and guidelines for bibliographic database based on aforementioned information.

The results of the study revealed article database standards briefly described as follows: First, database concerning articles in serials are generated from previous indices & abstracts journals. Second, early indices & abstracts journals from all study fields were grouped as a single general format, however, since the early 20th century, they were beginning to be categorized into specialized subjects, and in the late 20th century, former indices & abstracts journals were transformed into database including full-text with abstracts for library automation service. Third, descriptive components in early publication of article indices are in simplified forms, i.e., title, author, journal name, location within journal (issue designation, pagination). However, in the process of transformation into database format, additional variety of components are being added including author’s mailing and e-mail addresses, table of contents and abstract, ISSN, key words or classification or subject category, date of publication, publisher, type of materials, language, full-text. However, different formats are used for selecting data element and entry order. Fourth, bibliographic elements of ten representative domestic and international bibliographic database systems showed many dissimilar descriptive field types, as well as
differences in entry orders and details. Fifth, database standards or guidelines were non-existent in domestic and international bibliographic database agencies, and different format have been adapted among those agencies. It is strongly recommended that all library should create a plan for adapting internationally standards in data input format as well as output format. Sixth, ISO 690 series are the most appropriate international standard database building model in all study fields with internationally accepted format over 30 years. Seventh, therefore, conforming with ISO 690 & ISO 690-2 bibliographic descriptions, their ten components will be adapted as the basic framework for building the database and appropriately select additional seven data components of total 17 database categories as listed below: (1) title, (2) main author, *(3) author affiliation and e-mail address, *(4) minor (subordinate) author(s), (5) journal name, (6) location within journal (issue designation, pagination), (7) ISSN, *(8) place of publication, (9) publisher, (10) date of publication, *(11) text language, *(12) edition, (13) classification or subject category, (14) key words, (15) abstract or contents if no abstract exist, *(16) holding institution, *(17) full-text. Seven items in asterisk (*) marks are additional database components and are optional items, and all others are compulsory items.