

## **NATIONAL CLASSIFICATION OF OCCUPATIONS- 2004**

# **INTRODUCTION TO NATIONAL CLASSIFICATION OF OCCUPATIONS, 2004**

### **HISTORICAL BACKGROUND**

The first effort in the direction of preparing an occupational classification system in India was made by the then Directorate General of Resettlement and Employment (now called the Directorate General of Employment and Training) in 1946 in bringing out a publication titled “Guide to Occupational Classification” primarily for the use by employment service for day-to-day work at the Employment Exchanges, such as: registration of applicants, documentation of vacancies, compilation of statistical data, etc. It was an industrially biased classification and was framed after the British pattern.

International Labour Organisation (ILO) brought out first International Standard Classification of Occupations (ISCO) in 1958 with a view to bring out a complete occupational classification system, which could help in promoting International comparability of statistical data relating to occupations.

DGE&T accordingly took up the work of preparing a National Classification of Occupations on the lines of International Standard Classification of Occupations (ISCO) and brought out “National Classifications of Occupations – 1958”.

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This National Classification of Occupations-1958 contained information about 1990 occupations on the following hierarchical pattern:

11	Occupational Divisions	(One digit Code No.)
75	Occupational Groups	(Two digit Code No.)
331	Occupational Families	(Three digit Code No.)
1990	Occupations	(Five digit Code No.)

Both the ILO and the DGE&T continued to work for the improvement of their respective classification systems. The ILO introduced a number of changes in the ISCO 58, called it ISCO 66, applying the principle of “type of work performed” more rigidly and revised the Major, Minor and Unit Groups (corresponding to NCO Divisions, Groups and Families) of the classification. In order to ensure that National Classification of Occupations is compatible with ISCO – 66, D.G.E&T. revised the code structure so that the new NCO called NCO 68 was patterned after the ISCO 66. While adopting the ISCO 66 code structure, deviations were made, where necessary, to suit the Indian conditions.

This edition attempted to group together occupations according to similarity of work performed and contained information about 2484 occupations on the following hierarchical pattern:-

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8	Occupational Divisions	(One digit Code No.)
95	Occupational Groups	(Two digit Code No.)
462	Occupational Families	(Three digit Code No.)
2484	Occupations	(Five digit Code No.)

This was a 5 digit classification system which gave a unique Title to every occupation (this is called the Standard Title) and in some cases alternative titles have also been given. This classification gave definitions of the occupations, which give a brief outline of the main tasks and functions of each occupation thus bringing out the difference between one occupation and another.

In this classification system the grouping of occupations was based on the fundamental criteria of 'type of work performed'. Accordingly, occupations were classified in the NCO 68 so that all the workers engaged on the same type of work are grouped together irrespective of the industrial classification of establishments where they are engaged. For example, all clerical workers have been classified in one occupational group; whether they are engaged in a factory, mine, government office or even a shop. Similarly, Drivers have been grouped together, so also those engaged in services, etc.

The branch of economic activity (industry), in which a job occurs, did not affect the classification of occupations in the NCO-68.

However, this classification system did not take into account the skill involved in the performance of various occupations. This means in effect

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that occupations having similar nature of work though requiring varied levels of skill for their performance were grouped together.

The International Labour Organization has now come out with a new version wherein not only the work performed but also the skill level has been considered in the codification of occupations. The salient features of ISCO-88 are as follows;-

The International Labour Organisation (ILO) revised ISCO-66 on the recommendation of the International Conference of Labour Statisticians and brought out ISCO-88. The publication has been compiled on the basis of the experience of the occupational and statistical experts of the International Community as well as through collaboration with experts from different countries.

The International Standard Classification of Occupations-88 has been developed to facilitate international comparisons of occupational statistics and to serve as a model for countries developing or revising their national occupational classifications.

ISCO 88 has three main aims, namely:-

1. To facilitate international communication about occupations by supplying national statisticians with a tool to make national occupational data available internationally.
2. To make it possible for international occupational data to be produced in a form which can be useful for research as well as for

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specific decision-making and action-oriented activities, such as those connected with international migration or job placement.

3. To serve as a model for countries developing or revising their national occupational classifications. However, ISCO 88 is not intended to replace any existing national classification of occupations, as the occupational classification systems of different countries are required to reflect the structure of their individual national labour markets.

The framework necessary for designing and constructing ISCO 88 has been based on two criterion namely kind of work performed and the level of skill involved instead of one criteria i.e. the kind of work performed in the earlier edition.

A “job” has been defined as a set of tasks and duties performed by one person and an “occupation” as a set of jobs whose tasks and duties are of a similar nature.

“Skill” has been defined as the ability to carry out the tasks and duties of a given job which encompasses two dimensions namely:-

1. **Skill level** – this is a function of the complexity and range of the tasks and duties involved.
2. **Skill specialisation** – this shows the field of knowledge required, the tools and machinery used, the materials worked on and the kinds of goods and services produced.

In view of the international character of the classification, only four broad skill levels have been used. This classification of skill levels

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has more or less been based on the educational categories and levels, which appear in the International Standard Classification of Education (ISCED). It is also worth keeping in view that the focus has been on the skills required to carry out the tasks and duties of an occupation and not on whether a worker working in a particular occupation is more or less skilled than another worker in the same occupation.

Significantly, the concept of skill level has not been applied in the case of legislators, senior officials & managers as based on information from national sources, skills for executing task and duties of these occupations vary to such an extent that it would be impossible to link them with any of the four broad ISCO 88 skill levels.

The ISCO 88 has the following hierarchical structure :-

1.	Major groups	10
2.	Sub-major groups	28
3.	Minor groups	116
4.	Unit groups	390

The ten Major Groups (Division in NCO) are:-

1. Legislators, senior officials and managers.
2. Professionals.
3. Technicians & associate professionals.
4. Clerks.
5. Service workers and shop and market sales workers.

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6. Skilled agricultural and fishery workers.
7. Craft and related trades workers.
8. Plant and machinery operators and assemblers.
9. Elementary occupations.
0. Armed forces.

For each of the groups at the four levels of aggregation of ISCO-88 a code number, a title and a brief description of the content is provided. In the case of unit groups, the main tasks of the occupations belonging to each of them are briefly described. However, detailed descriptions of the occupations belonging to each of the 390 unit groups have not been developed for ISCO-88 as it has been brought out as an illustrative publication only.

### **2. NEED FOR REVISION OF NCO**

It is more than 3 decades that the last edition of the NCO was brought out. During this period many changes have taken place in the economic, social, industrial and agrarian fields. Globalization and Economic Liberalization has infused competitiveness amongst various industries. This has led to changes in the work process and skill level of the workers resulting in change in the occupational pattern and significant changes in the jobs conventionally being performed by Indian Personnel and also have brought in a totally new breed of jobs and functions to be undertaken in the changed overall scenario.

Moreover, ISCO-88 has been brought out by ILO incorporating the concept of skill level of performance of various jobs in addition to the concept of type of work performed which was the basis of earlier classification. It is,

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therefore, imperative that we also bring out our National Classification of Occupations compatible ISCO-88.

All this necessitates the revision of the present edition of the NCO.

### **OUTLINES OF REVISION EXERCISE**

The exercise on Revision of NCO was undertaken in-house by DGE&T through State Directorates of Employment and Vocational Rehabilitation Centers for Handicapped under the aegis of the DGE&T.

#### **I. Formation of Steering Committee and Core Group**

A comprehensive technical committee called the Steering Committee having members drawn from the following organisations was formed;

1. Directorate General of Employment & Training (D.G.E. & T.)
2. Planning Commission
3. Chief Provident Fund Commissioner
4. Central Statistical Organization
5. National Sample Survey Organization
6. Registrar General of India
7. Ministry of Industry
8. Ministry of Information Technology
9. Institute of Applied Manpower Research
10. Department of Small Scale Industries
11. V.V. Giri National Labour Institute
12. National Council of Applied Economic Research

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13. Bureau of Public Enterprises
14. Confederation of Indian Industries
15. University of Delhi

The Steering Committee in its second meeting held on 25th February, 2002 recommended that a Core Group may be formed to constantly guide and advise the DGE&T study team in their work. Accordingly, a Core Group was set up on 15<sup>th</sup> March 2002 having members drawn from the following organizations;-

1. Directorate General of Employment & Training (D.G.E. & T.)
2. Central Statistical Organization
3. National Sample Survey Organization
4. Registrar General of India
5. Department of Small Scale Industries
6. State Director of Employment, NCT, Delhi
7. State Director of Employment Andhra Pradesh
- 8.

**II. Designing of Job Analysis Schedule & It's Pre –testing**

As in the case of earlier editions of the NCO, a Job Analysis Schedule was designed for collection of Occupational information from various sources. The schedule was designed on the basis of occupational, educational information available through the reports on Occupational Educational Pattern of Employees published under the EMI programme of the DGET and other relevant sources.

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The schedule was designed in such a manner that all aspects of the occupation were covered. Apart from this, the Job Analysis Schedule was designed to cover even the peripheral information about the occupation like the details about the employer, the sector of economy to which the occupation belonged, alternative titles if any, the size of employment in the occupation, the skill level involved. For the convenience of Job Analysts, and to maintain uniformity detailed guidelines for filling the job analysis schedules, highlighting the steps involved for collecting data, for each item were specified in the Schedule.

### **Pre-testing the Job Analysis Schedule**

The Job Analysis Schedule was pre-tested in six states namely Andhra Pradesh, Tamilnadu, Karnataka, Kerala, Maharashtra and Gujarat through the six Vocational Rehabilitation Centers for Handicapped (VRCs) functioning in these states. The data collected by the VRCs was analysed and the details about the same occupations coming from different VRCs were cross-checked. The difficulties faced by the Job Analysts were examined and detailed discussions held with the Job Analysts to resolve the difficulties. On the basis of these inputs necessary modifications were made in the schedule as well as in the guidelines for filling the Job Analysis Schedules. The schedule was finalized and approved by the Core Group for adoption in the field.

### **III. Methodology**

Since the primary source of collecting the information is the “Establishment” it was necessary to ensure the widest coverage of the Establishments. Employers’ Register maintained by the National Employment Service for their Employment Market Information Programme,

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lists of employers organisations, list of establishments compiled by NSSO for conducting Annual Survey of Industries, etc. were considered for preparing a frame a establishments. The final frame was prepared by the Employment Market Information Units as follows:-

The Employment Market Information Units were asked to up-date their Employers' Registers by utilizing the data available from various sources like; -

1. List of establishments compiled by NSSO for conducting Annual Survey of Industries;
2. Consultation of WEBSITES hoisted by corporate sector;
3. Consultation with Private Placement agencies to the extent possible;
4. Utilisation of records maintained by various offices of State Governments such as by
  - the office of Inspector of Shops & Establishments
  - the office of Chief Inspector of Factories
  - the office of Inspector of Schools
  - the office of Local Mines Inspector
  - the office of District Industries Officer
  - the office of District Treasury Officer
  - records from the Small Industries Service Institute
  - Employers' Associations etc.

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### **III(a) Coverage of Establishments & Industries**

A total number of 2.8 lakh establishments were in the frame prepared by various Employment Market Information Units. A 10% sample was the preferred sample size. This gave a list of about 28 thousand establishments which was pruned to remove establishments with similar type of activities. Ultimately about 10 thousand establishments were selected. These 10 thousand establishments were distributed to 536 Employment Market Information Units proportional to the total number of establishments in each unit.

Establishments within an Employment Market Information Area were selected following a two stage stratified sampling. In the first stage, the stratum was formed by grouping establishments as per National Industrial Classification. In the second stage the total allotted sample in an Employment Market Information Unit was distributed to the Stratum proportional to the number of establishments in the stratum. The establishments in a strata were selected randomly.

### **III (b). Training of Field Staff**

Although most of the Officers who were put on the job of collection of occupational information on the Job Analysis Schedules, were drawn from EMI Units and VRCs where collection of occupational information forms a regular feature of their jobs, yet, to ensure uniformity in the collection of data and maintain the highest standards in the Job Analysis work, training courses

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were organized for the job Analysts both at the DGET and at a few State HQs. At these training courses special emphasis was laid on explaining the intricacies involved in filling the job schedules. Stress was laid on clarifying differences between various terms, which in common usage are interchangeable like (i) Occupation (ii) Designation (iii) Job (iv) Position (v) Task. Practical training was provided. A detailed manual of procedures was also developed which inter-alia contains chapters on; -

1. Need for Revision of NCO
2. Methodology
3. Organization and Field Operations
4. Responsibilities of Different Organisations
5. How to conduct job analysis
6. Conduct of job analysis and preparation of job specifications
7. Check list for job analysts
8. Flow chart
9. Blank job analysis schedule
10. Guidelines for filling job analysis schedule
11. Specimens of filled in job analysis schedules

Copies of this manual were distributed to all the State Directorates of Employment, Employment Market Information Units and Vocational Rehabilitation Centers.

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### **III(c) . Coverage of Un-organised Sector**

Employment Exchanges and Vocational Rehabilitation Centers, as a part of their regular activities, are to collect Labour Market Information so as to get information about newly emerging areas and areas going out of existence so that the job-seekers can be guided for the gainful activities as self-employment etc. Information about newly emerging occupations in the unorganized sector accordingly was collected from the employment exchanges. In addition, this sector was also covered by the VRCs during the course of Job Development work, particularly under the Community Based Rehabilitation programme in which the main thrust is on identifying occupations in the non-formal sector.

### **III (d). Collection through Secondary Sources**

In addition to information collected by the Job Analysts through Sample Survey as explained above, efforts were made to collect data through various secondary sources also. For this, all the National and major regional newspapers and leading magazines were scanned. Lists were prepared of occupations for which various employers had put demands in this media. These lists were pruned to delete the occupations already covered and information on new occupations was collected. The Internet was thoroughly scanned to locate new occupations for which demands were posted by the private placement agencies and a few corporate houses. Occupational

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Classification systems of other countries were also consulted to locate newly emerging occupations which have a relevance to Indian conditions.

Apart from this, other organisations like RGI, CSO, NSSO also provided very useful inputs with regard to occupations (both at 4 digit family level and 6 digit occupation level) not covered under the present classification. CSO particularly provided detailed information about a large number of new occupations. Since the survey is not an estimational survey, the information provided by various organisations served as a valuable input for deciding new occupations.

### **IV. Co-ordination and Liaisoning**

Since a large number of officers belonging to various agencies like D.G.E & T, State Directorates of Employment, VRCs, CSO, RGI etc were involved in the whole exercise, it was imperative to ensure the process of data collection went about in such a manner that the Occupational Information collected was as per the requirement of the project. To ensure this, co-ordination and liaison between various agencies was achieved firstly through distribution of the detailed Manual of Procedure on Revision of NCO to each and every officer involved in the process. Secondly, constant touch through correspondence, telephone, fax and E- mail etc. was maintained by the D.G.E & T study team with all those involved in the exercise. The field analysts were encouraged to get even the slightest doubts cleared. The field organisations were constantly reminded about the importance and urgency of the exercise and the need to adhere to the time frame for completion of the project.

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### **V. Processing of the Job Analysis Schedules**

A large volume of data thus collected became available at DGE&T Headquarters, which was classified according to NIC codes. The job descriptions were thoroughly studied and job descriptions of the same occupation received from different sources were edited and consolidated to have an average picture of the job duties of the occupation. These average pictures were then compared with the job descriptions of the existing occupations to identify new occupations. Duplication was taken care of to ensure inclusion of only new occupations.

### **VI. Skill Level**

Before codifying all the occupations on the pattern of ISCO-88 the skill levels as defined in the International Standard Classification of Education (ISCED) were modified to suit Indian conditions taking particular cognizance of informal skill. As many a times, particularly in the Indian context the skills necessary to perform the tasks and duties of a given job can be acquired not only through formal education but may be and often are acquired through informal training and experience, at times passed on from generation to generation. This was finalized in consultation with the Steering Committee which inter-alia had two senior academicians as members. The four skill levels defined for NCO- 04 vis-à-vis the skill levels defined in ISCO-88 are given below

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<u>LEVEL</u>	<u>ISCO 88</u>	<u>NCO 2004</u>
I	Primary Education	Up to 10 years of formal education and/or informal skills.
II	Secondary Education	11-13 years of formal education.
III	First University Degree	14-15 years of formal education.
IV	Post-Graduate University Degree	More than 15 years of formal education

The skill level of each newly identified occupation was decided on the basis of information about academic and technical qualifications and experience requirement as also the average job description of the occupation to see whether the job requirement was of administrative, managerial, supervisory nature or of a subordinate/ repetitive nature in the Indian context.

In keeping with the skill levels defined above to suit Indian conditions, following **Divisions** have been classified in tune with the defined skill levels to accommodate Occupations.

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DIVISION	TITLE	SKILL LEVEL
1	Legislators, Senior Officials and Managers	Skill not Defined*
2	Professionals	IV
3	Associate Professionals	III
4	Clerks	II
5	Service Workers and Shop & Market Sales Workers	II
6	Skilled Agricultural and Fishery Workers	II
7	Craft and Related Trades Workers	II
8	Plant and Machine Operators and Assemblers	II
9	Elementary Occupations	I

- The concept of skill level has not been applied in the case of legislators, senior officials & managers as skills for executing task and duties of these occupations vary to such an extent that it would be impossible to link them with any of the four broad skill levels.

**VII. Levels of Aggregation**

In keeping with the pattern of classification of occupations adopted in ISCO-88, it was decided to have one more level of aggregation between Division and Group called Sub- Division. The nomenclature for different levels of aggregation now is as under: -

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<u>NCO 68</u>	<u>ISCO 88</u>	<u>NCO 2004</u>
DIVISION	MAJOR GROUP	DIVISION
GROUP	SUB-MAJOR GROUP	SUB DIVISION
FAMILY	MINOR GROUP	GROUP
-	UNIT GROUP	FAMILY
OCCUPATION	-	-
-	-	OCCUPATION

**VIII. Finalisation & Codification**

The framework necessary for designing and constructing NCO-2004 has been based on two main concepts. The concept of kind of work performed in an occupation & the level of skill involved in the performance of the occupation. Here, it is emphasized that the focus in NCO-2004 is on the skills required to carry out the tasks & duties of an occupation and not on whether a

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worker holding a particular occupation is more or less skilled than another worker in the same occupation. In case of multi skill occupations, the codification has been done on the basis of the pre dominant skill requirement in the performance of the occupation.

All the 2945 Occupations (both existing & newly identified) have been grouped together according to combinations of specific duties, tasks and work functions concerned with, while actually performing the same or closely related work. Each occupation has been assigned a six-digit code, a distinct title (in some cases alternative titles have also been provided) and a definition.

The occupations have been first assigned to the Ten Occupational Divisions (identified by the initial digit in the code number) on the basis of their job description. The Divisions have then been combined into 30 Sub-Divisions identified by the first two digits of the code number in which the first digit indicates the Division in which the Sub-Division falls and the Sub-Divisions assigned to 116 Groups (identified by the first three digits of the code numbers. The first two digits representing the Sub-Division to which the Group belongs). The Groups have been plotted on 439 Families.

Families are identified by the first four digits of the code number – the first three digits representing the group to which the family belongs. Disaggregations after Family have been made to accommodate initially up to Nine ‘Two Digit’ codes with in each Family keeping a provision for accommodating up to 99 Occupations in each Family.

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While relating occupations to one another in a family, the level of skill required as also the general similarity of characteristics of work performance were determined. The most important feature of a family is that the Occupations included are more closely related to each other than to occupations outside the family as regards the functions involved and the skill required for satisfactory performance. Grouping of Occupational Families into Occupational Groups and occupational groups into Sub-divisions were similarly based on affinity between such families and groups inter se. An occupational Division is essentially a convenient basis for combining homogeneous Groups and Sub-divisions.

Codes at double digit have been adopted at the Occupation level as per the coding structure followed in the 1968 as well as in the 1958 editions of the NCO as also in ISCO-58 and ISCO- 68 (ISCO-88 has not codified at the occupational level). A point (.) separates the final two digits from the code number of the family.

The last two digits of the Code numbers for individual occupations within a family are being numbered in sequence, usually leaving intervals of 5 or 10 between numbers depending on the number of occupations to be accommodated within the Family. This also leaves a scope for accommodating any new occupations that may be identified later without disturbing the basic code structure. Shorter intervals between the code numbers of two consecutive occupations have been kept to denote the close proximity of the nature of work of the two occupations whereas larger

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intervals would denote dissimilarity of the nature of work of the two occupations.

The new NCO shall supersede the present NCO i.e NCO-68. The revision has been carried out in line with the approach adopted by ILO in its ISCO-88. As such, all the Unit Groups in ISCO-88 have been adopted as Families at 4 digit level, even though in some cases no occupations at the specified skill level have been identified so far. This allows flexibility in the coding structure to accommodate all such occupations, which may become available in the near future.

Owing to introduction of the concept of Skill Level and new aggregation at six digit level in the present classification the code structure has been radically changed. This has resulted into breaking up and/or merger of some Divisions, Groups and Families of the 1968 version. Due to this, exact equivalents of all the codes in the 68 version may not be available.

As in the earlier editions separate codes have not been provided for Apprentices, Foremen and Instructors (in-plant). These may be classified by prefixing 'A', 'B' or 'C' respectively before the code number of the occupation which is being learned, supervised or instructed.

Concordance tables for all Occupations showing new codes against the old 1968 codes and vice-versa have been prepared. An alphabetical index of all the occupations (including standard as well as alternative titles) showing both NCO-68 as well as NCO-04 code has also been added.