

CERTIFICATE COURSE

IN

FOOD PACKAGING

Department of Food Processing and  
Technology

Atal Bihari Vajpayee Vishwavidyalaya

Bilaspur (C.G.)

(A State University, Established by the Government of  
Chhattisgarh)

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### 1. About the University

Atal Bihari Vajpayee Vishwavidyalaya (ABVV), a State University, established under the Chhattisgarh Act No. 7, 2012, is in existence since June, 2012. The University has affiliation of around 180 government and private colleges covering 5 major districts of the state. The University is catering the education needs of both graduation and post graduation courses of the various streams mainly covering Science, Commerce, Law, Education, and Research Centers.

### 2. About the Course

The certificate programme in Food Packaging is recognized qualification which provides learners with a broad knowledge of the principles, materials, processes, systems and other elements of packaging production and use. Those completing the course are awarded a CERTIFICATE and will be able to apply this knowledge for solving problems and making decisions associated with the technical and aesthetic performance, cost, safety aspects of packaging materials and packaged products.

### 3. Scope:

Food Packaging is a professional course targeted to cater the food packaging industry needs trained food professionals. The information, guidance, practical training and off course completion certificate will provide the participant with not one but many opportunities in the industry. This would come true in form of job roles and positions like that of packaging technician, production manager, supply chain operator, position in packaging team, food packaging consultants and many more.

### 4. Outcome of the Course:

- To impart comprehensive overview of the scientific and technical aspects of food packaging.
- To instill knowledge on testing and regulations of packaging
- To demonstrate packaging machineries and systems of food industries.

### 5. Eligibility Criteria

All those who have completed their Senior School Certificate Examination (Class XII) with Mathematics/Biology. As this course is truly professional and industry oriented, employed individuals from any sector (packaging, production, processing, quality, trial, R&D etc.) can also seek benefits of the course who have interest in food industry.

### 6. Fees Structure

One time registration/tuition fees of RS. 5000/-

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**7. Intake Capacity – 30 seats**

**8. Course Duration – 6 months/ 24 weeks.**

**9. Attendance**

Minimum attendance of 75 % is required in the classes for appearing in the examination.

**10. Examination & Scheme**

**11. Concise Course Content**

Programme Structure

**Module 1:** Introduction to Food Packaging

**Module 2:** Packaging Trends- Global Scenario

**Module 3:** Variations in Packaging

**Module 4:** Package Designing for Foods

**Module 5:** Testing and Regulatory aspects of Food Packaging

**Module 6:** Packaging Machinery and Systems

**Module 7:** Testing and Quality Control

Note: Syllabus Detail is given in Annexure: 1.

**1. COURSE STRUCTURE :**

- 1.1. Theory - The theory syllabus will be updated periodically by the BOS
- 1.2. Practical's - The practical syllabus will be updated periodically by the BOS.
- 1.3. Assignment/Seminar/Project – As per the directions of Department.

S. No.	Papers	Maximum Marks	Minimum Marks
1.	Paper I- Theory	75	30
2.	Paper II- Practical	100	40
3.	Assignment/Seminar/Project	25	10
Total marks		200	80

**2. EXAMINATION PROCEDURE:**

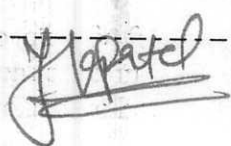
At the end of course the examination will be conducted. Its notice & time table will be displayed for communication to the students at least before 10 days of the date of examination.

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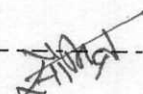
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- 2.1. For successful completion of the program, a participant is required to have a minimum of 75 % attendance. A participant will not be eligible to appear in the term-end practical examinations if the percentage of attendance in practical sessions falls below 75%. He/she can, however, appear for the theory papers. In order to make up deficiency of attendance in practical sessions, the student will be required to attend extra classes (practical) as per directions issued by the University from time to time.
- 2.2. Theory - The formats may be used for this purpose.
- 2.2.1. Question Paper will be in English medium.
- 2.2.2. Examinations shall be of 75 marks which are divided as:  
Part A (10 x 2 = 20) MCQs A multiple-choice questionnaire  
Part B (10 x 2.5 = 25) Fill in the blanks/very short answer questions  
Part C (6 x 5 =30) short/long answer questions
- 2.2.3. Candidates securing a minimum of 30 marks shall be declared to have secured pass in this section. Time allowed for the examination shall be of a maximum of 2 hours.
- 2.3. Practical:
- 2.3.1. Practical Question Paper will be in English medium.
- 2.3.2. Examinations shall be of 100 marks which is divided as –  
Maximum marks: 100      Time: 2 hours  
Q1. Practical Exam      = 60 Marks  
Q2. Practical manual      = 10 Marks  
Q3. Spotting      = 15 Marks  
Q4. Viva Voce      = 15 Marks
- 2.3.3. Candidates securing minimum of 40 marks shall be declared to have passed in this section.
- 2.4. Assignment/Seminar/Project: Maximum marks: 25
- 2.4.1. Candidates securing a minimum of 10 marks shall be declared to have secured pass in this section.
- 2.5. To qualify for the award of certificate, a candidate must pass in all the sections as mentioned in 2.2, 2.3 & 2.4 separately. Those securing 75% and above as total will be declared to have passed with distinction.
- 2.6. Candidates who have failed and wish to appear again in the examination shall have to appear in both i.e. theory and practical sections irrespective of their performance in various sections in the last examination in which they appeared. Candidates will be given only one chance to re-appear in exam for completion of the certificate course
3. Result: Results will be declared on receipt of the final result sheet from the tabulator, Examination, Atal Bihari Vajpayee Vishwavidyalaya, Bilaspur Chhattisgarh.



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4. Certificate: Certificate shall be awarded to the candidate after successful completion of the course and declaration of the result.

**Note:** Such value added course is also useful in gaining self employability to the students and are also promoted by various national bodies like UGC, AICTE, ICAR etc.

#### **Benefits for the University**

- ✓ Revenue Generation
- ✓ Additional Certification Course
- ✓ Value Added Course (Helpful in NAAC)
- ✓ Industry Collaboration (Helpful in AICTE)
- ✓ Entrepreneurial Course (Helpful in NAAC Criteria-I)
- ✓ No extra infrastructural setup required.
- ✓ Possible with the existing workforce.
- ✓ Helpful in getting government projects like PMKVY, DDUGKY.
- ✓ Can be guided through e-content.
- ✓ Development of e-content for the course (Helpful in AICTE and NAAC Criteria – III).

#### **Benefits for the Participants**

- ✓ Professional Certification
- ✓ Job oriented
- ✓ Practical exposure
- ✓ Authenticity of the Course
- ✓ Less fees as compared to other Institutions.

#### **Detail Syllabus:**

#### **Annexure 1**

##### **Module 1:** Introduction to Food Packaging

Packaging Functions and Requirements, Printing of packages. Barcodes & other marking, Labeling Laws

**Module 2: Packaging Trends- Global Scenario:** Overview to modern packaging scenario. The drastic variations and challenges in packaging industries. Biodegradable plastics, Edible packaging and Bio-composites. Environmental Concerns recycling and disposal of plastic waste  
Glass: Composition, Properties, Methods of bottle making, Types of closures.

**Module 3: Variations in Packaging** (Chapter 6, 7, 8 Robertson, 2012 and Chapter 7 Coles et al, 2003)

Paper and paper-based materials, corrugated fiber board (CFB).

Plastics, formation- Injection molding, Blow molding, Types of plastics, Lamination,

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Metal packaging- Metals: Tinplate, tinning process, components of tinplate, tin free can (TFC) types of can, metallic films, lacquers

#### **Module 4: Package Designing for Foods**

Package design for fresh horticultural produce and animal foods, dry and moisture sensitive foods, frozen foods, fats and oils, thermally processed foods and beverages.

(Chapter 7,8,9,10,11,13 Paine and Paine, 1992)

#### **Module 5: Testing and Regulatory aspects of Food Packaging**

Testing Procedures for Packaging Materials- thickness, tensile strength, puncture resistance, bursting strength, seal strength, water vapor permeability, CO<sub>2</sub> permeability, oxygen permeability, grease resistance,

Testing Procedures for Packaged Foods - Compatibility and shelf life studies, evaluation of transport worthiness of filled packages.

Food Packaging Laws and Regulations.

#### **Module 6: Packaging Machinery and Systems**

Bottling machines, Cartoning systems, Seal and Shrink packaging machine; Form, Fill and Sealing machine (FFS).

Vacuum, Controlled and Modified atmosphere packaging systems; Aseptic packaging systems;

Retort packaging, Active and Intelligent packaging systems

#### **Module 7: Testing and Quality Control**

- a. Testing of physical/mechanical properties of food packaging material.
- b. Testing of thermal shock resistance of glass.
- c. Gas/Vacuum packaging of foods and shelf life studies.
- d. Determination of Water Vapor Transmission rate of Packaging Material.
- e. Study of Sorption Isotherm for Food Package Design.
- f. Packaged food cut-out analysis.
- g. To study the operation of FFS machine.

#### **Suggested References:**

1. Robertson GL, Food Packaging – Principles and Practice, CRC Press Taylor and Francis Group, 2012
2. Paine FA and Paine HY, A Handbook of Food Packaging, Blackie Academic and Professional, 1992
3. Coles R, McDowell D, Kirwan MJ Food Packaging Technology. Blackwell, 2003

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