**Food Preservation**

**Course Code:** Maj/H.Eco-FN-301

**Credit hrs. 3(2+1)**

 **Checklist of Course Content**

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| **Course Content** | **Sources of Course Material** |
| **Theory:**  |  |
| **1. Principles of food preservation** 1.1 Definition of food spoiling and food preservation, importance of food preservation, health risks due to food spoilage.1.2 Food production and food loss incurred due to poor food Utilization. | **Book:** **Handbook of Food Preservations**<http://www.cold.org.gr/library/downloads/Docs/Handbook%20of%20Food%20Preservation.PDF>**Lecture:** Ppt on Food Spoilage<https://www.slideshare.net/waleedfoad/5th-lecture-food-spoilage-overview>Audio Lecture with slides on Food Spoilage<https://slideplayer.com/slide/4741690/>FOOD SAFETY, STORAGE & PRESERVATION<https://www.ethicalteapartnership.org/wp-content/uploads/Food-Safety-Module-3-1.pdf>Food preservation & Food processing<https://www.slideshare.net/mahmudulmithun/food-processing-and-preservation-93159224>Principles of Food preservation<http://13.126.85.12/eagri50/AMBE101/pdf/lec23.pdf>Food Preservation<http://libvolume2.xyz/chemicalengineering/btech/semester7/foodtechnology/foodprocessingandpreservation/foodprocessingandpreservationtutorial2.pdf>**Video Lecture:** Food preservation<https://www.youtube.com/watch?v=MKjTpR6qlvk> |
| **2. Methods of food preservation.**2.1. Different methods used in the preservation of food i.e. high Concentration of sugar, pickling, dehydration, fermentation, irradiation etc. Objectives principles involved, merits and demerits.2.2 Brief study of colloidal chemistry in relation to food preservation, dispersion, Solution, Sols/gels, Osmosis and Osmotic pressure, PH and dialysis, Factors that increase or decrease stability. | **Book: Physical Principles of Food preservation**<https://cetiquimica2.files.wordpress.com/2014/03/pr1nc1pl35_f00d_pr353rv4t10n.pdf>**How to Preserve Food: A Complete Guide for Preserving Food**<https://www.biotechnologynotes.com/food-biotechnology/food-preservation/how-to-preserve-food-a-complete-guide-for-preserving-food-food-biotechnology/14141>**ppt on Methods of food processing and food preservation**<https://www.slideshare.net/Kanchchana/preservation-methods-129552244> **colloids**<https://ceng.tu.edu.iq/ched/images/lectures/chem-lec/st2/c2/physical-chemistry-chem.eng-dept/catalyst/letures%20in%20Colloid.pdf>**Colloidal system in foods**<https://www.intechopen.com/books/some-new-aspects-of-colloidal-systems-in-foods/introductory-chapter-some-new-aspects-of-colloidal-systems-in-foods>**ppt on function of colloidal system in food products**<https://www.slideshare.net/ParminderMitter/colloidal-system-in-food-6979374> **Video Lectures:** **Food Preservation Methods**<https://www.youtube.com/watch?v=FUdie8Zy4BM&feature=youtu.be>**Application of Colloidal system in food preparation**<https://hmhub.me/application-colloid-systems-food-preparation/> |
| **3. Preservation by low temperature**.3.1. Methods involved in preservation of food by low temperature.3.2. Principals underlying the above methods.3.3. Quick and slow freezing – merits and demerits.3.4. Thawing, refrigeration, cold storage, de-hydrofreezing, Cryogenic freezing etc. | **Book: Food Processing Technology, Principles and practices** <https://www.webpal.org/SAFE/aaarecovery/2_food_storage/Food%20Processing%20Technology.pdf>**Food preservation by freezing**[http://labgraos.com.br/manager/uploads/arquivo/cap--26-handbook-of-food-preservation-pdf-(prof--mauricio-de-oliveira).pdf](http://labgraos.com.br/manager/uploads/arquivo/cap--26-handbook-of-food-preservation-pdf-%28prof--mauricio-de-oliveira%29.pdf)**Food preservation by use of low temperature**<https://slideplayer.com/slide/10669605/>The science of freezing foods<https://extension.umn.edu/preserving-and-preparing/science-freezing-foods>VideosFreezing fruits<https://www.youtube.com/watch?v=DVTabaiUroQ&feature=youtu.be>Freezing vegetables<https://www.youtube.com/watch?v=vGkEv49PFOo&feature=youtu.be> |
| **4. Preservation by high temperature.**4.1. Definition of processing, canning, autoclaving4.2. Preservation of food by canning, steps involved in process of canning.4.3. Spoiling of canned food. | **Book: Food Processing Technology, Principles and practices** <https://www.webpal.org/SAFE/aaarecovery/2_food_storage/Food%20Processing%20Technology.pdf>**Preservation of food by Physical methods: low & high temperature**<http://www.uop.edu.pk/ocontents/Lecture%20no%205.pdf>**Home canning basics with video lecture**<https://extension.umn.edu/preserving-and-preparing/home-canning-basics> |
| 5**. Preservation by preservatives.**5.1. Objectives, principles, types of preservatives.5.2. Chemical preservative used in preservation of food, their role and function, reaction.5.3. Safety in use and certification levels etc. | **Book: Preservation of fruit & vegetable** <http://journeytoforever.org/farm_library/AD3.pdf>**Introduction to Food Preservatives**<http://www.biosciencenotes.com/food-preservatives/>**Chemical preservatives**1. <http://www.fao.org/3/v5030e/v5030e0d.htm>2. <http://www.brainkart.com/article/Preservation-by-Chemical-Preservatives_33482/>**ppt on Food Preservatives**<https://www.slideshare.net/davidmbwiga1990/lecture-5-chemical-preservation-of-food> |
| **6. Preservation by high osmotic pressure.**6.1. Pickling, salting, curing – principles.6.2. Methods, raw material, quality.6.3. General spoilage. | **Book: Preservation of fruit & vegetable** <http://journeytoforever.org/farm_library/AD3.pdf>**Food preservation by high osmotic pressure**<http://www.brainkart.com/article/Preservation-by-High-Osmotic-Pressure_33483/>**video lecture:****Osmosis and food preservation**<http://www.ilectureonline.com/lectures/subject/CHEMISTRY/12/97/2991> |
| **7. Preservation by dehydration** 7.1. Difference between sun-drying and dehydration.7.2. Objectives and principles of dehydration.7.3. Steps in process of dehydration74. Merits and demerits of dehydration.7.5. Effects on Nutritive value in dehydrated foods. | **Book: Preservation of fruit & vegetable** <http://journeytoforever.org/farm_library/AD3.pdf>**Introducing Food Dehydration**<https://extension2.missouri.edu/gh1562>**Methods of drying foods at home with Video lecture**<https://extension.umn.edu/preserving-and-preparing/drying-food> |
| **8. Containers used for storage – Glass, tin, polythene Advantages and disadvantages.**8.1. Different types of containers used in processing of foods.8.2. Selection of containers with specific reference to food.8.3. Types and advantages and disadvantages of using glass, tin, polythene.8.4. Special food packaging – modified atmosphere packing etc. | **Book: Food packaging Technology**<http://www.ucarecdn.com/ad92a553-a70b-442a-8256-b905b39c466c/>**Food Packaging materials**<http://www.fao.org/3/v5030e/V5030E0h.htm#Chapter%207%20Packaging%20materials> |