# 《食品工艺学》课程教学大纲

<table>
<tr><td colspan="6">课程基本信息（Course Information）</td></tr>
<tr><td>课程代码<br>（Course Code）</td><td>FS327</td><td>*学时<br>（Credit Hours）</td><td>48</td><td>*学分<br>（Credits）</td><td>3</td></tr>
<tr><td rowspan="2">*课程名称<br>（Course Name）</td><td colspan="5">（中文）食品工艺学</td></tr>
<tr><td colspan="5">（英文）Food Processing</td></tr>
<tr><td>课程性质<br>(Course Type)</td><td colspan="5">Compulsory Course</td></tr>
<tr><td>授课对象<br>（Audience）</td><td colspan="5">Senior Students of Food Science and Technology Department</td></tr>
<tr><td>授课语言<br>(Language of Instruction)</td><td colspan="5">English （or Bilingual depending on requirement）</td></tr>
<tr><td>*开课院系<br>（School）</td><td colspan="5">Food Science and Technology Department of Agriculture and Biology School</td></tr>
<tr><td>先修课程<br>（Prerequisite）</td><td colspan="5">Food Chemistry, Food Engineering, ect..</td></tr>
<tr><td>授课教师<br>（Instructor）</td><td colspan="2">Associate Professor Sheng Yi</td><td>课程网址<br>(Course Webpage)</td><td colspan="2">ecc.sjtu.edu.cn</td></tr>
<tr><td>*课程简介（Description）</td><td colspan="5">（中文 300-500 字，含课程性质、主要教学内容、课程教学目标等）<br>《食品工艺学》是食品科学与工程专业的专业必修课程。是面向本专业三、四年级学生开设的专业核心课，先修课程包括《食品化学》、《食品工程原理》等专业课程。《食品工艺学》也可以面向全校作为自然科学类的通识课程。<br>《食品工艺学》是一门研究食品生产的课程。根据现代食品工业术语中对食品所作出的定义，食品是指从农业种植产品或者养殖产品等原材料出发，通过工业生产将其加工为可食用或者饮用的半成品、成品的过程，但不包括烟草和药物。在这个转化过程中，涉及到各种农业种植初级农产品、养殖初级农产品、林产品、蜂产品、水产品、食用真菌以及茶叶等原料学的知识；在食品加工过程中，又涉及到加工的设备、设施、生产工艺流程和技术要点。根据食品加工的门类来分，又可以分为粮油类产品、果蔬制品、肉制品、蛋制品、乳制品、水产食品、软饮料产品、烘焙类产品、糖果与巧克力制品、休闲膨化类食品、调味品等类别。结合现实条件与地区经济的特点，我们将选取重点、有典型代表意义的一些食品加工门类作为课程教学的主体内容。<br>通过课堂教学，使学生了解食品加工的门类、重点类别食品加工工艺过程。掌握在食品加工过程中所普遍采用的原材料、添加剂、所涉及的工艺流程、设施设备和技术要点。进而了解并掌握从农业初级产品通过工业化的加工过程，转化为可食用或者饮用的物质的过程。并能深入理解现代食品加工与食品质量及安全之间的关系，为应用专业知识和技能解决生产实际需要奠定基础。</td></tr>
</table>

<table>
<tr><td>*课程简介（Description）</td><td>（英文 300-500 字）<br>《Food Processing》is a compulsory course for the senior students of Food Science and Technology Department. It is also a core major course in the whole curriculum program. The prerequisite courses could be ‘Food chemistry’, ‘Food Engineering’ and ‘Food Safety’, but not required absolutely.<br><br>《Food Processing》is a course on how to produce different kind of food products. According to the terminology of modern food industry, it studies on the transformation of raw materials and ingredients, by physical or chemical means into industrial edible or potable products, not including tobacco and medicine.<br><br>Food processing typically takes clean, harvested or culled crops or butchered animal products and processes these produce attractive, marketable and often long shelf-life manufactured food products. There are a variety of food products and their foods processing. Based on local economy, we focused on dairy products, bakery products and beverages and their processing in this curriculum.<br><br>For example, a dairy product is food produced from the milk of mammals. Raw milk collection, milk components and chemistry, liquid milk products, milk powder, condensed milk, fermented milk products, yogurts and cheese are taught in this section.<br>Students after learning Food Processing, should totally understand basic knowledge of food industry, food products and its transformation.</td></tr>
<tr><td colspan="2">课程教学大纲（course syllabus）</td></tr>
<tr><td>*学习目标(Learning Outcomes)</td><td>1．Understand the concepts and scope of food processing;（A3， A5）<br>2．Understand the relationship between raw materials and foods; （A5）<br>3．Understand the transformation of food products; （A3，A5）<br>4．Improve the awareness of the critical control points in the supply chain; （A5，C6）<br>5. Improve the ability on problem analysis and problem solving; （B2，B3，B7）<br>6. Enhance the cooperation and self-motivation of students; （B8，B10，C4）<br>7. Literature research and good presentation; （B1，B6，B9）<br>8. Team-work abilities. （B4，C2，C3 ）</td></tr>
<tr><td>*教学内容、进度安排及要求<br>(Class Schedule<br>& Requirements)</td><td>
<table>
<tr><th>教学内容</th><th>学时</th><th>教学方式</th><th>作业及要求</th><th>基本要求</th><th>考查方式</th></tr>
<tr><td>Introduction</td><td>3</td><td>Lecture</td><td>Material review</td><td>Reading</td><td>Discussion</td></tr>
<tr><td>Milk Collection and Sanitation</td><td>3</td><td>Lecture</td><td>Material review</td><td>Reading</td><td>Discussion</td></tr>
<tr><td>Basic chemistry</td><td>3</td><td>Lecture</td><td>Review</td><td>Reading</td><td>Q & A</td></tr>
<tr><td>Distribution System</td><td>3</td><td>Lecture</td><td>Literature Searching</td><td>Reading</td><td>Quiz</td></tr>
</table>
</td></tr>
</table>

| | | | | | | |
|---|---|---|---|---|---|---|
| | Lipids | 3 | Lecture and Discussion | Literature Searching | Reading | Q & A |
| | Protein | 3 | Lecture and Discussion | Literature Searching | Reading | Q & A |
| | Pasteurization | 3 | Lecture and case study | Literature Searching | Reading | Report |
| | UHT processing | 3 | Lecture | Review | Reading | Report |
| | Fermented dairy products | 3 | Lecture | Review | Reading | Report |
| | Cheese producing | 3 | Lecture | Review | Reading | Report |
| | Bakery introduction | 3 | Lecture | Review | Reading | Discussing: Raw materials |
| | Bread and staple bakery | 3 | Lecture | Review | Reading | Case Study |
| | Cakes and cookies | 3 | Lecture | Review | Reading | Case Study |
| | Beverage introduction | 3 | Lecture | Review | Reading | Case Study |
| | Beverage Processing | 3 | Lecture | Review | Reading | Case Study |
| | Practice and Pilot Plant Tour | 3 | Group Discussion | | | Report |
| *考核方式 (Grading) | （成绩构成）<br>1) Class attendance (0.5 point for each class, 10% total )<br>2) Assignments ( 3-4 times, 20% of your final scores )<br>3）Final exam ( 70% ) | | | | | |
| *教材或参考资料 (Textbooks & Other Materials) | 教材：<br>Food Science: An Ecological Approach. Sari Edelstein. 否. Jones & Bartlett Learning. 2014. 1st Edition. ISBN:978-1-4496-9477-7. 5 届. 是. 否.<br><br>参考资料：<br>1. Dairy Processing and Quality Assurance. Ramesh C. Chandan, Arun Kilara. John Wiley& Sons Ltd. 2008&2016. Second Edition.<br><br>2. Bakery Products Science and Technology. Weibiao Zhou, Y.H.Hui. Second Edition. 2014 by John Wiley& Sons Ltd.<br><br>3.Dairy Processing Handbook. Teknotext AB. Tetra Pak Processing Systems AB S-221 86 Lund, Sweden. 1st Edition and 2nd Edition. | | | | | |

| | |
|---|---|
| 其它<br>（More） | |
| 备注<br>（Notes） | |

备注说明：

1．带*内容为必填项。

2．课程简介字数为 300-500 字；课程大纲以表述清楚教学安排为宜，字数不限。