1. INTRODUCTION

1.1 Definition and importance of Agribusiness Program:

This prospectus for the Agribusiness was initiated. This prospectus is in accordance with and guidance of the Prospectus of The Faculty of Agriculture, Moshtohor of 2009. The prospectus was modified to be up-to-date parallel with the new changes.

The farming industry is closely related to the marketing industries that are essential to transform, transport, and transfer food and fiber to the consumer. In addition, farming is served by a large number of industries that manufacture and distribute durable goods and other farm supplies used in agriculture.

Farmers are buying more of their inputs rather than using farm produced inputs. These inputs include fertilizers, feed, petroleum products, farm machinery, chemicals, and other farm supplies and services.

Food processors are the link between farmers and food wholesalers and retailers. There are processing firms that add form utility to the raw farm product, for example, the transformation of sugar cane and super beets into sugar and wheat into bread.

Food wholesalers link food processors with retailers who sell directly to consumers and institutional outlets. A retail food chain is a group of stores owned and operated by the same firm. The major impact of the retail chain store movement was on wholesale operations. Chain stores combined wholesaling with retailing, and to a lesser extent, processing, and were able to lower costs.

Such events have significant impacts on human beings and can be understood and predicted better with sound education training in agricultural economics and agribusiness especially when supplemented by a good background in technical agriculture.

Agribusiness is a multidisciplinary field of study aimed at providing students with a number of scientific, technical and economic disciplines.

2. Vision and Mission of Agribusiness Program:

2.1 Vision

The agribusiness education in the Faculty of Agriculture, Benha University, Egypt, Provides graduates capable of competition on local and international levels who:

1- are highly familiar with scientific and technical agricultural production.
2- Are highly familiar with technical aspects of crop and animal production.
3- Plan and execute feasibility studies in the fields of agribusiness.
4- Execute project evaluation of the agribusiness firms.
5- Possess an ability to deal with processing firms of crop and animal products.
6- Are capable of working in the field of international trade and investment.
7- Possess an ability of working in the field of financing and credit institutions.
8- Are familiar with the use of networks of information dissemination in the field of Agribusiness.

2.2. Mission:

The mission of the agribusiness program is providing the Egyptian business firms, multinational firms, and International organizations with qualified graduates. The graduates of the agribusiness program are capable to fulfill their duties in these business firms.

2.3. Aims

The agribusiness program provides education opportunities for high secondary school graduates to get trained in technical agriculture, economic and business sciences.

2.4. Program Outcomes

2.4.1 Professional academic knowledge and skills

On completion of the program students should be able to:

Acquire a good overview of agricultural sciences a whole and agribusiness in particular.

Possess practical and theoretical skills in a career of agribusiness.

Understand the core principles involving the agribusiness activities in the economy.

2.4.2 Attributes for all-roundness

By completion of agribusiness program the graduates will be able to:

1. Communicate efficiently in English language.
2. Acquisition of skills, planning, organization and management of agribusiness firms.
3. Demonstrate creative analysis of problem-Solving skills in agribusiness activities.

3. The language of the programs

The programs are given in English language throughout all the levels of the study, stages and courses. This makes the graduate fully qualified for competing in the work market on the local as well as the international level. The graduate will be capable of handling aspects relating the electronic trade, with the implicated modern consequences. Having the study in English language, allows the students from other countries to attend in these programs particularly Africans, Asians, and other non-Arabic speaking countries.
4. Departments and Facilities

4.1 Scientific Departments and Courses:

The courses and their contribution in the program by each Department are given in Table 1.

4.2 Staff members:

The distribution of staff members and their assistants in different Departments of the Faculty of Agriculture at Moshtohor are presented in Table 2.

Table 1: Departments and courses contributed in the programs.

<table>
<thead>
<tr>
<th>Serial</th>
<th>Department (&amp; its code)</th>
<th>Courses contributed in Agribusiness programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Agronomy (AG 01)</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>Horticulture (HO 02)</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>Animal Production (AP 03)</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>Plant Protection (PP 04)</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>Soils (SO 05)</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>Agricultural Economics &amp; Extension (EE 06)</td>
<td>27</td>
</tr>
<tr>
<td>7</td>
<td>Food Science (FS 07)</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>Agricultural Botany (AB 08)</td>
<td>5</td>
</tr>
<tr>
<td>9</td>
<td>Agricultural Biochemistry (AC 09)</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>Genetics &amp; Genetic Engineering (GE 10)</td>
<td>3</td>
</tr>
<tr>
<td>11</td>
<td>Agricultural Engineering (AE 11)</td>
<td>7</td>
</tr>
<tr>
<td>12</td>
<td>Common and joint courses (CJ 12)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>73</strong></td>
</tr>
</tbody>
</table>
Table 2: Distribution of staff members and their assistants in different scientific Departments*

<table>
<thead>
<tr>
<th>Serial</th>
<th>Department and Code</th>
<th>Teaching staff and their assistants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Professor</td>
</tr>
<tr>
<td>1</td>
<td>Agronomy (AG 01)</td>
<td>11</td>
</tr>
<tr>
<td>2</td>
<td>Horticulture (HO 02)</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>Animal Production (AP 03)</td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>Plant Protection (PP 04)</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>Soils (SO 05)</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>Agricultural Economics &amp; Extension (EE 06)</td>
<td>7</td>
</tr>
<tr>
<td>7</td>
<td>Food Science (FS 07)</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>Agricultural Botany (AB 08)</td>
<td>9</td>
</tr>
<tr>
<td>9</td>
<td>Agricultural Biochemistry (AC 09)</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>Genetics &amp; Genetic Engineering (GE 10)</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>Agricultural Engineering (AE 11)</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>66</td>
</tr>
</tbody>
</table>

* May 2013

4.2. The Faculty Facilities:

The lectures rooms, laboratories, symposia rooms, farms and Animal farms in the Faculty of Agriculture, Moshtohor are presented in Table 3.

Table 3: Lecture rooms, laboratories, symposia rooms, farms and Animal farms of the Faculty of Agriculture, Moshtohor.

<table>
<thead>
<tr>
<th>Serial</th>
<th>Description*</th>
<th>Number*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lectures rooms for more than 200 students.</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>Lectures rooms for less than 100 students.</td>
<td>25</td>
</tr>
<tr>
<td>3</td>
<td>Student Laboratories</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>Seminar and discussion rooms</td>
<td>15</td>
</tr>
<tr>
<td>5</td>
<td>Research Laboratories</td>
<td>16</td>
</tr>
<tr>
<td>6</td>
<td>Research and consultancy laboratories</td>
<td>18</td>
</tr>
<tr>
<td>7</td>
<td>Experimental and Research Center</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>Agricultural Analytical and Consultation Center</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>Animal and Poultry farms (about one 4 Feddan)</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>Crops and Horticultural farms (total area of 105 feddan).</td>
<td></td>
</tr>
</tbody>
</table>

* See article 2 of the Moshtohor Faculty of Agriculture Prospectus (Credit hours).
5. **Enrollment and the study system**

**Article 1:** Students and graduates eligible for enrollment in the programs *in line with articles 4, 5 and 6 of the Faculty Prospectus*:

*Students eligible* for enrollment are those who obtain certificate of Completing Secondary School Education (Science or Mathematics).

*Students obtaining* a certificate completing Secondary School Education (the Literature Branch could be admitted to the Agribusiness Program only.

**Article 2:** The body awarding the degree:

The BSc Degree in Agribusiness is awarded by the University of Benha, upon a request by the Faculty of Agriculture, Moshtohor.

**Article 3:** Study system, Student Evaluation and Degree Awarding

*in line with articles 7 to 10 of the Faculty Prospectus*:

a) The study Program for each of the Degrees of B.Sc. in Agriculture Biotechnology, Food safety, or Agribusiness is based on the credit-hour system.

b) The credit hour is an assessment parameter defining the relative weight of the academic study course. One credit-hour is: (i) one hour theoretical lecture per week; or (ii) two hours practical/laboratory lessons per week.

c) The program is in 4 levels (Academic Years), no less than 8 semesters. Each level is in two Semesters. Each Semester is 15 weeks. Final examinations are held at end of each semester, the overall result of examinations for each level is fulfilled after the second semester.

d) Each semester has two kinds of study courses: (i) Compulsory Courses (Obligatory) courses, all of which should be studied by students, and (ii) optional (selective) courses out of which the student chooses at least two to study, according to his/her preference and aptitude.

e) Each student should study at least 6 courses in each semester: 4 Compulsory Courses and 2 optional, in addition to any other course(s) essential for all students as decided by the University or the Faculty Board.

f) The student must register for 12 credit-hours minimum and 21 maximum per semester. (The Faculty Board may weaver this requisite as they see fit).

g) Minimum number of students registered in an optional course is three.
Article 4: Summer Semester:

The Faculty Council may add a Summer Semester within any of the 4 academic levels for students who wish to sit examination for a course that he/she failed to pass (whether in semester 1 or 2). Duration of such Summer Semester is 8 weeks, at the end of which an examination should be done. The number of hours/week, for each lecture in the Summer Semester is double that of the normal Semester. Courses that a student is entitled to enroll per a Summer Semester are no more than three. A student can enroll for a Summer Semester if (a) successful passing of such courses allows him/her to be transferred to the next level; or (b) in cases of fulfilling requirements of a full program, or (d) fulfilling the summer training.

Article 5: Award of BSc. Degree:

For a student to be awarded a BSc degree in Agribusiness, he/she fulfill successfully the study throughout the entire duration of the full program (all in English language) of no less than 148 credit hours (52 Compulsory Courses in levels 1 and 2, 48 Compulsory Courses in levels 3 and 4; 48 selective. Table 1 shows the distribution of the credit hours.

<table>
<thead>
<tr>
<th>Level</th>
<th>Semester</th>
<th>Compulsory Courses (Obligatory)</th>
<th>Optional Courses (selective)</th>
<th>Grand total of credit hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>26</td>
<td>12</td>
<td>38</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>26</td>
<td>12</td>
<td>38</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>24</td>
<td>12</td>
<td>36</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>24</td>
<td>12</td>
<td>36</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
<td>48</td>
<td>148</td>
</tr>
</tbody>
</table>

Article 6: Categorization of students and their status:

Level 1: Fresh students (enrolled for first time). Also students in this level who failed to pass 32 credit hours of the Program.

Level 2: Students elevated from level 1 passing successfully 32 credit hours at least. Also students who did not pass beyond 69 credit hours of the Program.

Level 3: Students who passed successfully 70 credit hours. Also students who failed to pass successfully beyond 105 credit hours of the Program.

Level 4: Students who passed, successfully, 106 credit hours of the program.
Article 7: The Student Academic Guide:

Students are assigned academic guides (in line with article 16 of the Faculty Prospectus). The Academic Guide is a Faculty Teaching Staff member (Professor or Assistant-Professor) who helps and guides the student relating the study program and the possible career opportunity. The activity also concerns choosing the optional courses and any related issues concerning the studies of the student. The opinion of the student’s Academic Guide is advisory and not necessarily Compulsory Courses since the final decision on any choice is the student’s. Each guide should keep records containing relative information and academic history of students under his/her guidance. Students are enrolled and their courses registered according to the rules of this Prospectus.

Article 8: Exchanging one course by another:

Based on a recommendation by the Student Guide and a confirmation by the Faculty Board (in line with article 16 to 18 of the Faculty Prospectus) the student can: (a) Omit a course and replace it by another course, or (b) add an extra course within the accepted limit of studied courses. This should be done within the first two weeks of the course commencement in the 1st or 2nd semester; or within the first week in the summer course.

Article 9: Withdrawal from a Course:

The student can withdraw from a course (within the first 6 weeks of the 1st or 2nd semester or within the first 3 weeks of the summer semester). In case of any withdrawal, the number of courses remaining should not be less than the minimum number of courses eligible for a student of the concerned Program.

Article 10: Proceeding to higher levels within the program:

The student can proceed from one level to another (higher above it) if succeeded in all courses. Students failing a course have a right to re-register and sit their examination as others.

Article 11: Failure in a Course:

In a case of failing the final examination in any Compulsory Courses (obligatory) course, the student should (in line with article 19 of the Faculty Prospectus) re-register in it, and sit the examination(s) for it. In case of failing an optional (selective) course, the student can re-register in it or register in another optional course of his/her choice.
**Article 12: Attendance of practical lessons:**

In line with article 20 of the Faculty Prospectus, the student should attend practical lessons fulfilling an attendance rate of no less than 75%. The council of the Faculty has the right to bar the student whose rate of attendance is less than 75%, from sitting the examination of the concerned course, and consequently the student is considered failed in the examination with a mark of zero. The same applies to the student who fails to attend the final examination of a course with no acceptable alibi or permissible excuse (and such case, the student is considered as absent without acceptable reason). If could not (or will not) attend an examination, the student should submit a request before the examination date or within the time of the examination; and if such a request is accepted by the Faculty Board, the student’s absence would be acceptable. If the student attends an examination during the time that a decision is being issued, result of such examination is **null and void**.

**Article 13: Follow-up tests and examinations:**

In line with article 21 of the Faculty Prospectus, follow-up tests (at least 2 tests per semester per course) must be done, organized by the concerned scientific Department. At end of each semester, oral, practical and written terminal examinations for each course should be done. The duration time for the terminal written-examination is two hours, unless decided otherwise by the Faculty council.

**Article 14: Distribution of examination marks by courses:**

In line with article 22 of the Faculty Prospectus, distribution percentages of full marks for any course are as follows:

a) For courses having practical examinations: 60% for the written terminal examination; 15% for the practical examination; 10% for the oral examination and 15% for the periodical follow-up tests.

b) For courses having no practical examinations: 70% for the written terminal examination; 10% for the practical examination; 10% for the oral examination and 10% for the periodical follow up tests.

**Article 15: Panels for oral, practical and laboratory examinations:**

In line with article 23 of the Faculty Prospectus, teaching staff members constituting the panels of oral, practical and laboratory examinations are appointed by the relevant scientific Department. The number of teaching stuff per panel is no less than two and no more than five. The minimum number of students per one examination sitting is five or the total number of students registered in the course (fulfilling article 290 of the Egyptian Low for Universities’ organization).
Article 16: Calculating Grade-Point Average (GPA) earned by student upon termination of examination:

In line with article 24 of the Faculty Prospectus, the grade-points earned by the student are averaged so as to give a value of Grade Point Average (GPA) ranging from 0.0 to 4.0. Table 5 shows each grade in terms of GPA value, code-letter, and percent of maximum marks, noting the followings: (a) the student is considered failed if obtained less than 30% of maximum marks allocated to the terminal written examination (thus considered “Prospectus-Failure”), irrespective of the overall total percentage of his/her marks relative to the total maximum of the course (total maximum is the sum of marks for practical + oral + terminal). (b) The student who passes examination(s)-in which he/she formerly failed-and obtain marks exceeding the Pass Grade marks, gets no more than the highest mark of the Pass Grade. An exception is the student who formerly failed due to absence with accepted alibi (acceptable reason); he/she is entitled to the deserved grade if exceeding the highest Pass marks.

Table 5: Grades and their percentages of maximum marks, values of Grade Point Average (GPA) and Codes.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage of maximum marks (%)</th>
<th>GPA value</th>
<th>Grade code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>95 and more</td>
<td>4.0</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>90 to less than 95</td>
<td>3.7</td>
<td>A-</td>
</tr>
<tr>
<td></td>
<td>85 to less than 90</td>
<td>3.4</td>
<td>B+</td>
</tr>
<tr>
<td>Very Good</td>
<td>80 to less than 85</td>
<td>3.0</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>75 to less than 80</td>
<td>2.8</td>
<td>B-</td>
</tr>
<tr>
<td>Good</td>
<td>70 to less than 75</td>
<td>2.4</td>
<td>C+</td>
</tr>
<tr>
<td></td>
<td>65 to less than 70</td>
<td>2.0</td>
<td>C</td>
</tr>
<tr>
<td>Pass</td>
<td>60 to less than 65</td>
<td>1.6</td>
<td>C-</td>
</tr>
<tr>
<td></td>
<td>55 to less than 60</td>
<td>1.3</td>
<td>D+</td>
</tr>
<tr>
<td></td>
<td>50 to less than 55</td>
<td>1.0</td>
<td>D</td>
</tr>
<tr>
<td>Weak</td>
<td>30 to less than 50</td>
<td>0.0</td>
<td>F</td>
</tr>
<tr>
<td>Very Weak</td>
<td>less than 30</td>
<td>0.0</td>
<td>F-</td>
</tr>
</tbody>
</table>

Article 17: The cumulative grade for each study level:

In line with article 25 of the Faculty Prospectus, calculation of the cumulative ‘grade point average’ (GPA) is as follows: concerning any particular level (academic year) calculated:

a) **For one study level (an academic year):** Summation of the { (GPA points for the course X credit hours of the course)…, regarding all courses attempted by student)} divided by (the total sum of credit hours of courses of the academic year).
b) **For the entire 4-year program:** Summation of the (GPA points for the course X credit hours of the course, regarding all courses attempted by student); divided by (the total sum of credit hours of courses of the four academic years).

**Article 18: The Honour Grade:**

A student gets an Honour grade if the grade is excellent or very good for each of the four academic years; and in the same time has a cumulative 4-year grade of excellent or very good (with at least 15 credit hours in any semester, and no failure in any of the courses).

**Article 19: Student Dismissal:**

In line with article 26 of the Faculty Prospectus a student enrolled in Level 1 is not allowed to continue and is dismissed if during the first two years of his joining the program failed to fulfill a minimum of 29 credit hours.

**Article 20: Summer Training and Scientific Excursions:**

In line with article 27 of the Faculty Prospectus, a student completing successfully at least 70 credit hours can carry out a summer training program given by the Faculty’s scientific Departments. The duration is one month (6 days per week; 8 hours per day). Students who successfully complete 106 credit hours must join the 6-week field summer training. This is as follows (a) 2 weeks in the scientific Department; and (b) 4 weeks in an outside institute, research center, factory, firm or other bodies involved in agriculture, under joint supervision (the Scientific Department and the outside body). The student may fulfill the summer training abroad in a factory or research Institute or a firm of comparable activity (private of governmental). In such case the Faculty would participate partially to facilitate procedures of travels and permits. In line of article 28 of the Faculty Prospectus, students of the 3rd and 4th levels must do scientific excursion to an Egyptian Agricultural Research Station or a body or institute of scientific research during the semester time.

**Article 21: Graduation Announcement:**

Successful Graduation results are announced following the June examination; (i.e. the June Graduation) in cases where the student succeeds in all of the examination for all courses for fulfilling the program (article 30 of the Faculty Prospectus). Students failing to succeed in all attempted courses are to re-sit the 2nd chance examination(s), and if succeeded they can obtain their graduation in the September Graduation.
**Article 22: The curriculum and the Required Credit Hours:**

Students are required to complete at least 148 credits for all courses. The credits hours of these programs are 52 compulsory in levels one and two, 48 compulsory in levels three and four, and 48 selective in each level of three and four. The courses and their codes in scientific department contributing to the programs are listed in Table 6.

**Table 6. The courses and their codes in scientific department contributing to the programs.**

<table>
<thead>
<tr>
<th>Serial</th>
<th>Department</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>07</td>
<td>Agronomy</td>
<td>AG 01</td>
</tr>
<tr>
<td>04</td>
<td>Horticulture</td>
<td>HO 02</td>
</tr>
<tr>
<td>03</td>
<td>Animal Production</td>
<td>AP 03</td>
</tr>
<tr>
<td>10</td>
<td>Plant Protection</td>
<td>PP 04</td>
</tr>
<tr>
<td>01</td>
<td>Soils and Water science</td>
<td>SO 05</td>
</tr>
<tr>
<td>02</td>
<td>Agricultural Economics &amp; Extension</td>
<td>EE 06</td>
</tr>
<tr>
<td>05</td>
<td>Food Science</td>
<td>FS 07</td>
</tr>
<tr>
<td>08</td>
<td>Agricultural Botany</td>
<td>AB 08</td>
</tr>
<tr>
<td>06</td>
<td>Agricultural Biochemistry</td>
<td>AC 09</td>
</tr>
<tr>
<td>09</td>
<td>Genetics and Genetic Engineering</td>
<td>GE 10</td>
</tr>
<tr>
<td>11</td>
<td>Agricultural Engineering</td>
<td>AE 11</td>
</tr>
<tr>
<td>12</td>
<td>Common and joint</td>
<td>CJ 12</td>
</tr>
</tbody>
</table>

6. **Details of Agribusiness courses:** The courses lists of the Agribusiness program are given in Appendix 1. Detailed contents as well as courses through different Departments for the Agribusiness program are as follows:

6.1 **Common and Joint courses (CJ12):**

6.1.1. **Course Name: English 1 (code: CJ 1201)**

**Prerequisite:**

**Course Description:**

The course aims at making the student be familiar with the use of English language to express himself/herself in proper English, differentiating from spoken and written English. Basic grammar and vocabulary are taught in this course. Combining comprehension with awareness is included.

**Course Contents:**

1) Introduction.

2) Simplified English.

3) Difficulties for English language users.
4) Grammar and vocabulary.
5) Informative statements.
6) Passive and Active.
7) Countable and uncountable nouns.
8) Comparative (qualified and unqualified) statements.
9) Definitions: general and formula definition
10) Spoken English and written English.
12) Indeterminate and determinate expressions.

References:
   http://books.google.de/books?id=nS8YAAAACAAJ&dq=Practical+English+usage&hl=en&sa=X&ei=4OYAUE4yMarJ4gSYyYHQA&redir_esc=y
   http://books.google.de/books?id=WsrtrmHkLvoC&pg=PA386&dq=The+linguistics+student%60s+handbook&hl=en&sa=X&ei=8eYAU5P5O6OI4ASj24DQyDg&ved=0CDkQ6AEwAA#v=onepage&q=The%20linguistics%20s
   tudent%60s%20handbook&f=false

6.1.2. Course Name: English 2 (Code: CJ 1202).
Prerequisite (CJ 1201)
Course Description:
The course gives the student more insight of English language oriented more to the scientific side, properly suited for the agriculture science discipline. Specific aspects will be stressed upon. Precise usage of English terms is included. Scientific English and specific nomenclature and glossary are included.
Course Contents:
1) Introduction.
2) Scientific English.
3) Dimensions and properties.
4) Scientific statements and verb tense.
5) Description of experiments.
6) Explanatory descriptions.
7) Subject-forms in description (imperative, passive, 1st or 2nd person).
8) Concise statements.
9) Proper statements on tables, figures, maps and graphs.
10) Standard International (SI) measuring units.
References:

   http://books.google.de/books?id=Z15qnQEACAAJ&dq=New+concept+English&hl=en&sa=X&ei=CecAU66UBsfX4AT4u4GoBA&ved=0CDQQ6AEwAQ

2) **Swales, J.M. 1945.** Writing scientific English. Thomas Nelson and Sons Ltd., London, UK.  
   http://books.google.de/books?id=xElOAIXnal4C&dq=Writing+scientific+English&hl=en&sa=X&ei=HOcAU5G8HuqB4gSGigwCg&ved=0CC4Q6AEwAA

3) **Swales, J.M. 1990.** Genre analysis: English in academic and research settings. 13th Printing, Cambridge University Press, UK.  
   http://books.google.de/books?id=shX_EV1r3-0C&printsec=frontcover&dq=Genre+analysis&hl=en&sa=X&ei=LecAU9D7BabV4gSQhYCAAQ&ved=0CC4Q6AEwAA#v=onepage&q=Genre%20analysis&f=false

4) **Bauer, L. 2007.** The linguistics student’s handbook. Edinburgh University Press, UK.  
   http://books.google.de/books?id=WsrtrmHkLvoC&pg=PA386&dq=The+linguistics+student%27s+handbook.&hl=en&sa=X&ei=P-cAU5XSBKig4gSQ8IGoDA&ved=0CDkQ6AEwAA#v=onepage&q=The+linguistics%20student%20handbook.&f=false

6.1.3. **Course Name: Computer Science (Code: CJ 1203)**  
**Prerequisite (CJ 1201)**

**Course Description:**

The course aims at preparing the student for handling and using the computer in carrying out issues suited to its use. It enables students to use software for a variety of disciplines.

**Course Contents:**

1) Introduction to computer science.
2) Learning about different uses of computer.
3) Familiarizing with Windows® software (e.g. Windows 95; Windows 7).
4) Microsoft Word software.
5) Microsoft systems.
6) Reasons and problem-solving.
7) Software applications.
8) Maximizing performance.
References:

http://books.google.de/books?id=pbqEACmJQ8YC&printsec=frontcover&q=computer+science&hl=en&sa=X&ei=UecAU8-Y4QTez4HgAQ&ved=0CEEQ6AEwAA#v=onepage&q=computer%20science&f=false

http://books.google.de/books?id=1RQ_AAAAQBAJ&printsec=frontcover&q=Autonomic+Computing:+Principles,+design+and+implementation&hl=en&sa=X&ei=ZecAU5PgLKiZ4wTF9IHgCg&ved=0CDcQ6AEwAA#v=onepage&q=Autonomic%20Computing%3A%20Principles%2C%20design%20and%20implementation&f=false

6.1.4. **Course Name: The Graduation Project (Code: CJ 1208)**

**Prerequisite:** (CJ 1201).

**Course Description:**

A project should be done and fulfilled within "**Level 4**" of the **BSc Program.** It could be done individually or by a group of students. It is supervised by one or more of the teaching staff of the faculty headed by a professor.

**Course Contents:**

1) The subject, scheme, discipline of the project is planned according to the rules of the university.

2) A dissertation should be prepared and a seminar be given, after which a panel of examiners gives the final decision.

**References:**

1) **CMS 2011.** The graduate project handbook for students. Charlotte-Mecklenburg Schools (CMS), Charlotte, NC, USA. 
http://books.google.de/books?id=IVwnWFbu6KkC&pg=PA157&dq=The%20graduation+project+handbook+for+students&hl=en&sa=X&ei=gucAU3fBYmJ4gSA0lGYDA&ved=0CCwO6AEwAA#v=onepage&q=The%20graduation%20project%20handbook%20for%20students&f=false


7. **Courses of Department of Agricultural Biochemistry (AC09)**

**Course Name:** Chemistry 1 (Organic and Inorganic) (code: AC0901)

**Description:**

The course aims at describing stereo-chemistry of aliphatic compounds, explaining organic reaction mechanisms, and reviewing alicyclic, heterocyclic and aromaticity of organic compounds. Determining conformation and configuration of organic compound and mechanisms of organic reactions as well as understanding electronic configuration and chemical bonds are included.

**Course Contents:**

1) Carbon atom and hybridization principals of reaction mechanisms.
3) Electronic configuration of atoms.
4) Chemical bonds between atoms.
5) State of matter (gaseous, liquid and solid states).
6) Practical applications.

**References:**

1) **House J. 2012.** Inorganic chemistry. 2nd Ed., Elsevier Inc. Oxford, UK. http://books.google.de/books?id=OVG0PwAAQBAJ&q=Inorganic+chemistry&hl=en&sa=X&ei=5ucAU47hMqiF4ATQu4D4Bg&ved=0CDcQ6AEwAA

2) **McMurry J. 2012.** Organic chemistry. 8th Ed. Cengage Learning, Boston, MA, USA. http://books.google.de/books?id=kQgu2j_ber0C&printsec=frontcover&dq=Organic+chemistry&hl=en&sa=X&ei=-OcAU8yWCl7n4QTBh4D4BQ&ved=0CDwQ6AEwAA#v=onepage&q=Organic%20chemistry&f=false

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http://books.google.de/books?id=_1gFM51qpAMC&printsec=frontcover&dq=Inorganic+Chemistry+for+Undergraduates&hl=en&sa=X&ei=COgAU4uxKMmu4Q5tl9dCTg&ved=0CEEQ6AEwAQL#v=onepage&q=Inorganic%20Chemistry%20for%20Undergraduates&f=false


**Course Name:** Chemistry 2(Biochemistry) (code: AC 0902)
**Prerequisite (AC0901)**

**Description:**
The course covers the structure of the living cell and its functions, the structure and chemistry of its major components (carbohydrates, proteins, lipids and enzymes), and benefits of these compounds to living organisms. Identifying the physical and chemical properties of base units of these groups and their classification.

**Course Contents:**
1) Carbohydrates and their classification (mono-saccharides, oligosaccharides, polysaccharides and their reactions).
2) Proteins (amino acids, nucleic acids and their reactions).
3) Lipids (classification of fats, oils and waxes), conjugated lipids, derived lipids and their reactions.
4) Enzymes (classification, mechanisms, kinetics, inhibitions).

**References:**
1) **Mary K. Campbell and Shawn O. Farrell 2010.** Biochemistry. 7th Ed. Cengage Learning, Boston, MA, USA.
http://books.google.de/books?id=48ajvcuYH2gC&printsec=frontcover&q=Biochemistry&hl=en&sa=X&ei=SugAU8anB4bV4wT23ICwDQ&ved=0CDQQ6AEwAQ#v=onepage&q=Biochemistry&f=false

2) **Reginald H. Garrett and Charles M. Grisham 2013.** Biochemistry, 5th Ed. Cengage Learning, Boston, MA, USA.
http://books.google.de/books?id=--Lhp0ppRYWoC&printsec=frontcover&q=Biochemistry&hl=en&sa=X&ei=SugAU8anB4bV4wT23ICwDQ&ved=0CDQ6AEwAg#v=onepage&q=Biochemistry&f=false
8. Courses of Department of Agricultural Botany (AB08)

Course Name: Botany (code: AB 0801)

Description

The course aims at giving knowledge on botany and its branches, external morphology for flowering plants and organs modification. Plant cell, tissue, secretion and vesicular tissues, types of vascular bundles are included. Anatomy of flowering plants, and general taxonomy of plant kingdom are also given.

Course Contents:

1) General introduction on botany and its branches, external morphology for flowering plants (roots, stem and leaves) organs modification.
2) Plant cell, plant tissue (merastematic, epidermis, parenchymatic, cholarancheima, schelarancheima, secretion and vascular tissues) types of vasicular bundles.
3) Anatomy of flowering plants (roots stems and leaves in mono and dicot plants) primary and secondary growths.
4) Effect of environment on external and internal morphology(hydrophytes and xerophytes.
5) Pollination and fertilization.
6) Taxonomy and plant kingdom specially regional and horticultural plants.
7) Cruciferacae, Leguminaceae, Cucurbitaceae, Solonaceae, Malvaceae, Elementary Knowledge of mosses, ferns, fungi, bacteria.

References:

Course Name: Agricultural Microbiology (Code: AB0803)

Prerequisite (AB0801)

Description:
The course concerns applications of microbiology in agriculture. Different applications include fertilization using micro-organisms (biofertilization), stock materials (e.g.) silage, and composting.

Contents:
1) Introduction to applications of microbiology in agriculture.
2) Organic manures, farmyard manure, and composts and importance to soil fertility.
3) 3-Biofertilizer and biofertilization: Microorganisms used as biofertilizers:
   (a) N₂ fixing micro-organisms including bacteria, cyanobacteria, azolla, and frankia.
   (b) P-dissolving microorganisms including bacteria and fungi.
   (c) Silicate-dissolving microorganisms.
   (d) S-oxidizing microorganisms.
5) Composting and compost preparation: Manure composts, biogas composts and its use as a manure. City refuses compost. Green manure
6) Silage production as animal feed stuff
7) Rotting of fiber plants.
8) Biological control: Microorganisms used in biological control and their application.

References:
Course Name: Plant Physiology (code: AB0806)

Prerequisite (AB0801)

Description:

The course is about physiological activities in plant organisms. Photosynthesis, plasmolysis, Transpiration, water and nutrient uptake, metabolic activities and other activities are covered.

Course Contents:

1) Plant cell as a physiological unit.

2) Plant water relations: (a) Osmosis, imbibition, diffusion. (b) Water potential, active and passive. (c) Water absorption and Plasmolysis. (d) Cohesion, tension and transpiration pull theory. (e) Factors affecting transpiration and mechanisms of stomata opening and closing (the $K^+$-transport theory). (f) Guttation and anti-transpirants.


5) Photoperiodism and Vernalization: Structure, function, and mechanisms of action of phytochromes, cryptochromes, and phototropins; photoperiodism and biological clocks. Brief account only.

6) Stress Physiology: Plant responses to biotic (e.g., pathogens and pests) and abiotic (e.g., drought, temperature, and salinity) stresses, and the resistance mechanisms.

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References:

   
   http://books.google.de/books?id=GtL0UQR8QDYC&dq=A+Textbook+of+Plant+Physiology,+Biochemistry+and+Biotechnology&hl=en&sa=X&ei=mOkAU9OzIYzW4wSN8oDYDg&ved=0CDoQ6AEwAA


   http://books.google.de/books?id=sScNAAAACAAJ&dq=Introductory+Plant+biology&hl=en&sa=X&ei=p-tukAU_2lEob_4QSs7YGgBg&ved=0CC4Q6AEwAA


   http://books.google.de/books?id=fT0iYPwq9_gC&dq=Fundamentals+of+Plant+physiology&hl=en&sa=X&ei=tukAU-zCHcvV4wTA5YCYAw&ved=0CDQQ6AEwAQ

**Course Name: Plant Pathology (Code: AB0807)**

**Prerequisite (AB0803)**

**Description**

1) To provide students with the basic symptoms of major plant diseases in selected crops.

2) To introduce students with the major fungicide groups and the basic control measures and strategies of major plant diseases.

3) To provide students with the basic concepts of plant disease development and the pathogens associated with the diseases.

**Course Contents:**

1) Introduction, The concept of disease in plants, classification of plant diseases, history of plant pathology, important of plant diseases, diagnosis of plant diseases .Parasitism and disease development. How pathogen attack plants Pathogen effects on plant physiological functions. How plant defend themselves against pathogens

2) Genetic and plant disease, Effect of environment on development of infectious plant diseases

3) Control of plant diseases Specific plant diseases Plant diseases caused by Fungi-diseases caused by lower Fungi Diseases caused by Oomycetes Diseases caused by Zygomycetes Diseases caused by Ascomycetes
Diseases caused by Basidiomycetes Diseases caused by imperfect Fungi Diseases caused by Bacteria and Phytoplasma. Diseases caused by Viruses and Viroids

4) Diseases caused by Parasitic higher plants and environmental factors that cause plant diseases

5) Diseases caused by nematodes

References:

   http://books.google.de/books?id=vSTvzcR6MgcC&printsec=frontcover&
   dq=plant+pathology&hl=en&sa=X&ei=zukAU-DnMKrD4gTQjoG4BQ&ved=0CDcQ6AEwAA#v=onepage&q=plant%20pathology&f=false

   http://books.google.de/books?id=Z3HGFiWIA6UC&printsec=frontcover&
   dq=Comparative+epidemiology+of+plant+diseases&hl=en&sa=X&ei=3ukAU5CeA6m7ygPM1oHYBQ&ved=0CC4Q6AEwAA#v=onepage&q
   =Comparative%20epidemiology%20of%20plant%20diseases&f=false

   http://books.google.de/books?id=PVIupwAACAAJ&dq=Introductory+Mycology&hl=en&sa=X&ei=8OkAUqCDsik4gT9ygPX4YC4DA&ved=0CC4Q6AEwAA

   http://books.google.de/books?id=3hj1mqgPggQC&printsec=frontcover&
   dq=Plant+pathology+and+plant+pathogens&hl=en&sa=X&ei=AOoAU_qCDsik4gSEg4HIBA&ved=0CC4Q6AEwAA#v=onepage&q=Plant%20pathology%20and%20plant%20pathogens&f=false

Course Name: Post Harvest Diseases (Code: AB0811)
Prerequisite (AB0207)
Description:

1) To acquaint with post-harvest diseases of agricultural produce and their ecofriendly management.

2) Concept of post-harvest diseases, definitions, importance with environment and health.
Course Contents:
1) Types of post-harvest problems both by biotic and abiotic causes.
2) Factors governing post-harvest problems both as biotic and abiotic, role of physical environment, agro-ecosystem leading to quiescent infection.
3) Operational mechanisms and cultural practices in perpetuation of pathogens, pathogens and antagonist and their relationship, role of biocontrol agents and chemicals in controlling post-harvest diseases.
4) Integrated approach in controlling diseases and improving the shelf life of produce with special reference to mycotoxicogenic fungi, knowledge of Codex Alimentarius.
5) Isolation characterization and maintenance of pathogens, role of different storage conditions on disease development.
6) Comparative efficacy of different chemicals, fungicides, phytoextracts and bioagents.

References:

Course Name: Production and Consumption Economics (Code: EE0606)
Description:
This course deals with the analysis of the relationship between production and consumption with emphasis in the Egyptian agricultural production and computation.

Course Contents:
1) Agricultural production in Egypt.
2) Factors determining production: available resources, costs, prices, and profit, availability of capital and credit. Availability of water, and society's traditional pattern of consumption.
3) Economic theory of determination of what to produce and know much to produce.
4) Time series data and analysis of quantities produced in Egypt of strategic agricultural products.

5) Agricultural products consumption in Egypt.

6) Determinates of consumer demand price of good, income, prices of substitute goods, tastes and preferences.

7) Theories of demeaned: utility theory and the indifference curves.

8) Patters of consumption are different in urban, rural, Nile delta and upper Egypt.

9) The food Deficit in Egypt; the need for imports.

10) The agriculture balance of trade.

11) Agricultural policies to reduce the agricultural gap.

References:


2) **Fletcher, B. Lehman, 1996.** Egypt's Agriculture in a Reform Era, Iowa State University Press, Ames, Iowa, USA.
   http://books.google.de/books?id=02S6AAAAIAAJ&q=Egypt%27s+Agri
culture+In+a+Reform+Era,&oq=Egypt%27s+Agri
culture+In+a+Reform+Era,hl=en&sa=X&ei=BesAU-
YniIzjBKW9gZgP&ved=0CC4Q6AEwAA

**Course Name:** Social and Rural Society (Code: EE 0607)

**Description:**

This course enables the students to understand how people experience and organize rural life; how families operate farms; how communities construct cultural meanings.

**Course Contents:**

1) Rural Sociology focuses on issues relating to the study of rural people and places, as well as rural related issues in developing countries.

2) Rural areas play a critical role in issues related to land use environmental protection and regulations, food production and processing.
3) Conceptualization of social formations or systems, and identification of relations that influence and shaped by the practice of rural life.
4) Concepts and processes; the role of groups and organizations in farming and related activities.
5) The terminology in sociology and rural community its importance and sources of information.
6) Theories of social change - and compared to the rural cavity urban and social problems, identification and description of the rural community and the rural population - social problems of rural areas and how to address them.
7) The changes in rural areas and organizations at various levels as related to the agricultural and rural sectors in Egypt.

References:

2) **Adams, Richard H., Jr. 1985.** "Development and Structural Change in Rural Egypt, 1952 to 1982." World Development 13, no. 6. [http://books.google.de/books?id=gZbRAOFJLBEC&pg=PA26&dq=Development+and+Structural+Change+in+Rural+Egypt&hl=en&sa=X&ei=N-sAU4TyBony4QT9gYGYBw&ved=0CC4Q6AEwAA#v=onepage&q=Development+and+Structural+Change+in+Rural+Egypt&f=false](http://books.google.de/books?id=gZbRAOFJLBEC&pg=PA26&dq=Development+and+Structural+Change+in+Rural+Egypt&hl=en&sa=X&ei=N-sAU4TyBony4QT9gYGYBw&ved=0CC4Q6AEwAA#v=onepage&q=Development+and+Structural+Change+in+Rural+Egypt&f=false)

3) **John, Gray 1992.** Organization Behavior- understanding life at work, Harper Collins publishers, New York. [http://books.google.de/books?id=uxiaMgEACAAJ&dq=Organizational+Behavior+-+understanding+life+at+work&hl=en&sa=X&ei=UOsAU8yEF8_34QSWzIHIAQ&ved=0CCwQ6AEwAA](http://books.google.de/books?id=uxiaMgEACAAJ&dq=Organizational+Behavior+-+understanding+life+at+work&hl=en&sa=X&ei=UOsAU8yEF8_34QSWzIHIAQ&ved=0CCwQ6AEwAA)

**Course Name:** Economic Resources (Code: EE0608)  
**Prerequisite (EE 0601)**  
**Description:**  
This course focuses on human and natural resources such as labor, management, land, water, and capital in agriculture.
Course Contents:
1) Definition of economic resources. Natural resources: land, water, mineral resources, labor. Management, labor force, employment.
2) Labor force characteristics, productivity level. Capital resources,
3) Capital in agriculture, characteristic of capital in agriculture, sources of capital in agriculture, credit system in the Egyptian agriculture.
5) Biological resources: animal production, livestock, ruminant, fish and wildlife.
6) The study of resource supplies from an economic point of view. Using economic tools and economic analysis to optimize the returns of resources.
7) Study the demand for each economic resource and its market.
8) Determine the price of each resource use.
9) Protect resources from wasting by resource conservation polices, laws and regulations.
10) Enforce laws and regulations to protect land, water, energy and human resources for this generation and the future generations.

References:
http://books.google.de/books?id=qMmc_89e-
l4C&printsec=frontcover&dq=Strategic+Human+Resource+Management.
&hl=en&sa=X&ei=busAU7KEG8Xe4QTwn4DYCg&ved=0CEEQ6AEw
AA#v=onepage&q=Strategic%20Human%20Resource%20Management%2C&f=false
http://books.google.de/books?id=s2xMyJgRsAQC&printsec=frontcover&
dq=Land+Resource+Economics&hl=en&sa=X&ei=gOsAU8SiCK2L4gT4
44HoCw&ved=0CC4Q6AEwAA#v=onepage&q=Land%20Resource%20
Economics&f=false
http://books.google.de/books?id=2anvAAAAMAAJ&q=Agriculture,+Eco
nomics,+and+Resource+Management&dq=Agriculture,+Economics,+and+
Resource+Management&hl=en&sa=X&ei=l0sAU96nBYSC4ATX1oCoBbg&ved=0CDAQ6AEwAA
Course Name: Agricultural Economics (Fundamentals) (Code: EE: 0602)
Prerequisite (EE0601)

Description:
This course provide students with knowledge and skills to the role of agriculture in our economic system. The role of farms in producing food and fibers for consumers. The farmer as decision maker in production of faint products to satisfy consumer needs.

Course Contents:
1) Agriculture is an integral part of the economy. Current importance of agriculture.
4) The concept of a production function. Types of production functions. The law of diminishing returns. Total, average, and marginal product.
5) Relationships between total, average, and marginal products. Three regions of a production function. Differences in technology.
6) A producer chooses among levels of production: Revenue related to production. Effects of price changes.
7) Linear production function. Diminishing returns. Inputs which must be applied in discrete units.
9) Effects of changes in technology on costs and profits.

References:
1) Kent D. Olson, 2010. Economics of Farm Management, Willy Eastern Limited. U.S.A. http://books.google.de/books?id=IcmRLWtXIS8C&printsec=frontcover&q=Economics+of+Farm+Management&hl=en&sa=X&ei=5usAU_ieD8KQ4ATDtiICgBQ&ved=0CDwQ6AEwAA#v=onepage&q=Economics%20of%20Farm%20Management&f=false
http://books.google.de/books?id=-6M1AQAAIAAJ&q=Agricultural+Economics&dq=Agricultural+Economics&hl=en&sa=X&ei=DewAU-rgCoSC4ATX1oCoBg&ved=0CEAQ6AEwAg

Course Name: Statistics (Code: EE0601)
Prerequisite (AE1102)
Description:
This course provides students with statistical methods, theory, problems and answers. Statistical tools to analyse data in all fields of study.

Course Contents:
1) Statistical definitions and concepts.
2) Frequency distributions.
3) Measures of central location.
4) Measures of variation.
5) Probability theory.
6) Probability distribution.
7) Estimation of parameters.
8) Sampling techniques.
9) Testing Hypothesis.
10) Correlation Analysis.
11) Analysis of variance.

References:
http://books.google.de/books?id=37EoYgEACAAJ&q=Statistical+Techniques+in+Business+and+Economics&hl=en&sa=X&ei=MewAU-WDKYno4gT7koBo&ved=0CDcQ6AEwAA


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Course Name: Extension Programs (Code: EE0605)
Prerequisite (EE0601)

Description:
This course provides students with an understanding of Agricultural extension programs. The steps of construction of the extension programs monitoring and evaluation tools are discussed.

Course Contents:
1) The definition of agricultural extension programs.
2) Terms of agricultural extension programs.
3) Elements of agricultural extension programs.
4) Stages of construction of agricultural extension programs.
5) The definition of agricultural extension work plan.
6) Prepare a plan of agricultural extension work.
7) Components of agricultural extension work plan.
8) Implementation of agricultural extension work plan.
9) Agricultural extension monitoring.
10) Evaluation of agricultural extension programs.
11) Definition and evaluation stages.
12) Impediments to agricultural extension evaluation.
13) The importance of the agricultural extension evaluation.
14) Agricultural extension evaluation stages.

References:
1) IFPRI, 2008. International Food Policy Food Research Institute. Extension In Developing Countries, Washington D.C., U.S.A. http://books.google.de/books?id=yGftAAAAMAAJ&q=Extension+In+Developing+Countries&dq=Extension+In+Developing+Countries&hl=en&sa=X&ei=ZwAU7GNN6Ta4wTctYDgCA&ved=0CDYQ6AEwAg
2) Smith, Keith, 1989. Extensions Linkages with organizational Development, In Blackburn, Donald. Foundation and changing practices In Extension, University of Guelph, Canada. http://books.google.de/books?id=oOIlI844tEC&pg=PA142&dq=Extensions+Linkages+with+organizational+Development&hl=en&sa=X&ei=OwAU6_oFcTa4AT8pYGABg&ved=0CDkQ6AEwAg#v=onepage&q=Extensions%20Linkages%20with%20organizational%20Development&f=false
Course Name: Labor Economics (Code: EE0612)
Prerequisite (EE0602)
Description:
Labor economics deals with the nature of labor force and factors affecting the number and productivity if labor force. Polices to deal with unemployment. Collective bargaining the wage rates and non wage benefits.
Course Contents:
1) The nature of labor force, men, women, young people.
2) The theory of affecting the employment, capital affecting the employment.
3) Industrialization and the need for work rules. Labor unions in developing countries.
4) The nature of the labor market Demand and supply of labor and the wage rate. Inflexibility of Wage rate and unemployment.
5) The nature of full employment economy. The kinds of unemployment. Demand deficient unemployment, innovation and structural unemployment, policies to deal with each.
6) The tradeoff between unemployment and inflation in economic policies.
References :
   http://books.google.de/books?id=fAVksWdZODUC&printsec=frontcover&dq=Labor+Economics&hl=en&sa=X&ei=leAU5jF4bj4wTji4wTji4w&ved=0CC4Q6AEwAA#v=onepage&q=Labor%20Economics&f=false
   http://books.google.de/books?id=CXI1AAAAQBAJ&dq=Contemporary+Labor+Economics&hl=en&sa=X&ei=q-wAU7a6BsSk4gSd4oHIBw&ved=0CC4Q6AEwAA

Course Name: Economics of Animal Production (Code: EE0613)
Prerequisite (EE0601)
Description:
This course provides students with knowledge about animal production in the Egyptian agriculture. The relationship between resources of food and benefits of meat and dairy production.
Course Contents:
1) Relationships between resources and animal production. The nature of production and resources. The framework of analysis.
2) Feed livestock production function. Laws of return and the nature of production function. Elasticity of livestock production physical relationships and choice.
6) Capital limitations and price response. Returns to scale and farm size. Some ratio measurement use to compare between the revenue of different enterprises of animal production.

References:
   http://books.google.de/books?id=3g6gMwEACAAJ&dq=Elements+in+Livestock+Management+Techniques&hl=en&sa=X&ei=wOwAU9rLAdTW4ASN64DwDQ&ved=0CEQQ6AEwAA
   http://books.google.de/books?id=iCyABjkRJ0C&printsec=frontcover&dq=Economics+of+Animal+Production+books&hl=en&sa=X&ei=HacDU_XcJleCtAaymoCACw&ved=0CDQQ6AEwAA#v=onepage&q=Economics%20of%20Animal%20Production%20books&f=false

Course Name: Economic and Social Statistics (Code: AE0614)
Prerequisite (EE0602)
Description:
This course provides the students with skills of statistics use in the field of economics and social sciences. Tools of statistics are very useful in analyzing economic and social problems and research.
Contents:

2) Methods of description observations and frequency distributions. Graphic presentation of frequency distributions.
3) Measures of central tendency for measured variables.
4) Measures of dispersion for measured variables.
5) The arithmetic mean and variance of attribute variables.
6) Measuring changes in price and quantity.
7) Description of stability: changes occurring at constant rates.
8) Description of stability: changes occurring by constant amounts.
9) Description of instability: The effects of seasonal, cyclical, and irregular variations.
10) Populations and samples.
11) Probability and the binomial distribution.
12) The normal distribution.

References:

   http://books.google.de/books?id=g1RYAAAACAAJ&dq=Statistical+Methods+for+Business+and+Economics&printsec=frontcover&hl=en&sa=X&ei=5uwAU468KZSQ4gTOyYHABA&ved=0CDcQ6AEwAA


Course Name: Economics of Water Resources (Code: EE0615)
Prerequisite (EE0602)
Description
This course provides students with knowledge and understanding of water resources and scarcity. The important of water to agriculture, human beings and industry water problems scarcity and tensions among countries sharing same water resources.
Course Contents:
1) Scarcity of water resources in Egypt.
2) Sources of water for irrigation.
   - The Nile River.
   - Agricultural land waste water.
   - Under ground water.
   - Rain water.
3) The need for increasing the quantities of water for agriculture irrigation.
   - The need for land reclamation and horizontal expansion.
   - The need for growing strategic crops such as rice, sugarcane and cotton.
4) The need for economizing the use of water in agriculture by
   - Conservation of water resources.
   - Using new irrigation techniques especially in new desert lands.
   - Using sorts of crops with lower needs of water.
   - Applying and economizing water use programs using research to maximize the return to the unit of water.
5) The need for good cooperation among countries sharing water streams such as the 10 Nile basin countries.

References:
1) Alille, A. 2013. Agriculture and Water Management, the times Group Books.
   http://books.google.de/books?id=dJjwILt_HCcC&printsec=frontcover&q=Agriculture+and+Water+Management&hl=en&sa=X&ei=GO0AU6aiA-qQ4gShvIDQDA&ved=0CC4Q6AEwAA#v=onepage&q=Agriculture%20and%20Water%20Management&f=false

Course Name: Microeconomics (Code: EE0616)
Prerequisite (EE0602)
Description: This course provides students with the theory of the firm and consumer as producing and consuming entity in producer as producing and consuming entity in producer and consumption of goods and services. The role of the firm in maximizing its profits the role of the consumer in maximizing satisfaction.
Course Contents:
4) The concept of production. A production function.
5) The concept of costs. The concept of profits.
6) Demand and supply in the product market: Equilibrium in the market. A change or shift in demand.
7) The imperfectly competitive firm—a price marker: demand facing an imperfectly competitive firm. The concept of marginal revenue. Marginal revenue and price.
9) Monopoly, price determination.

References:
   http://books.google.de/books?id=De_lfaHFWuYCY&dq=Microeconomics&hl=en&sa=X&ei=Re0AU-CJB4TUtQbVl4CYCA&sqi=2&ved=0CCwQ6AEwAA
   http://books.google.de/books?id=SGe1tlXl3O&printsec=frontcover&q=Microeconomics&hl=en&sa=X&ei=Re0AU-CJB4TUtQbVl4CYCA&sqi=2&ved=0CDEQ6AEwAQ#v=onepage&q=
   microeconomics&f=false

Course Name: Farm Management (Code: EE0617)
Prerequisite (EE0601)
Description
   This course provides students with tools and skills of managing the farm and farming activities. Farming activities include production of farm products such as crops and livestock, milk, poultry and eggs financing and credit.
Contents
1) Functions of management. Farm management and the decision-making environment.
2) Farm business activities. Options in choosing and accounting system. Valuation of assets. Depreciation and depreciation methods.
5) The production function. Applying the marginal principles.
9) Constructing a livestock enterprise budget. Computerized enterprise
10) Budgets. Interpreting and analyzing enterprise budgets.
15) Planning falin labor resources. Measuring labor efficiency. Improving labor efficiency.

References:
Course Name: Production Economics (Code: EE0618)

Prerequisite (EE0602)

Description

This course provides students with knowledge and scope of production economics in Egypt how to use limited resources to produce food and fiber products needed for consumers. Economic production and salty of biotechnology products are explained.

Course Contents:


1) Analyze various controversial issue relating to the safety of using biotechnology in food production. Production techniques.
2) Production analysis of food products produced by biotechnology process.
3) Apply consumer analysis of demand and supply of farm products.
4) Market structure: conditions of entry of new farms or firms, product differentiation, market concentration, market. Merger, price fixing, patents, vertical market power.
5) Market performance: profit rates excessive profits, advertising costs, excessive advertising, and rates of change in outputs, employment and prices.
6) Production analysis of food biotechnology products.
7) Price-fixing and patents.

References:

   http://books.google.de/books?id=PJ9ZAAAMAAJ&q=Production+Management&dq=Production+Management&hl=en&sa=X&ei=1-0AU5rbF8KQ4ATDtlCgBQ&ved=0CEIQ6AEwAQ
   http://books.google.de/books?id=KLjPAAAAAMAAJ&q=Economics+of+Agricultural+Production+and+Resource&dq=Economics+of+Agricultural+Production+and+Resource&hl=en&sa=X&ei=6-0AU9vIF4Sn4AS-0YH4BA&ved=0CC4Q6AEwAA
Course Name: Agricultural Finance (Code: EE0619)
Prerequisite (EE0601)

Description
This course gives students a comprehensive understanding of agricultural finance in Egypt. Sources of finance and agricultural credits in the Egyptian farming system.

Course Contents:
1) The main features of agricultural finance in both developing and developed countries.
2) Development of agricultural finance in Egypt.
3) The stage of unspecialized and unorganized agricultural credit.
4) The organized agricultural credit stage.
5) The stage of developed agricultural credit. The principle bank for development and agricultural credit [PBDAC]. Internal resources. External resources. Sources of agricultural finance.
6) The relationship between the PBDAC and the banking body system.
7) The PBDAC current agricultural credit policy. The role of village banks in agricultural development process.
8) Village banks and their role in the transfer of modern technology. Small farmer project the role of village banks in consolidating small land holdings. The role of village banks in providing credit to farmers. Present strategy of the PBDAC.

References:
   http://books.google.de/books?id=TQ0-615yogwC&printsec=frontcover&dq=Agricultural+Business+Management&hl=en&sa=X&ei=NO4AU5_7L6r64QTw24HgDQ&ved=0CEgQ6AEwAQ#v=onepage&q=Agricultural%20Business%20Management&f=false
   http://books.google.de/books?id=4T8rAAAAQBAJ&dq=Financial+Management+in+Agriculture&hl=en&sa=X&ei=W-4AU9b6E6Tt4gS9rYHgBA&ved=0CC4Q6AEwAA.

Course Name: Macroeconomics (Code: EE0620)

Prerequisite (EE0602)

Description:

This course provides students with the concepts of the gross national product. Economic activities of consumption, saving, investment and income determination. Government fiscal policy and monetary policy to curb inflation and encode employment.

Course Contents:

1) The gross national product and estimation of gross national product.
2) The level of economic activity consumption, saving, and the theory of income determination: The consumption function. income determination.

Fiscal policy and income determination: Government purchases, taxes, and the equilibrium condition. analysis and the effect of changes in the level of government purchases.
3) The level of investment, the decision to invest. Factors affecting investment spending.
4) Interest and money and the demand for money. The supply of money and interest rate.
5) General equilibrium of the product and money markets the IS and LM functions.
6) The demand of money and stabilization policy a keynesian-classical intermediate model.
7) The level of employment the factor market and the interest-investment mechanism. Formal models of income and employment determination.
8) Full employment, the price level, and the theory of interest.
10) The targets of macroeconomic policy are full employment, full production. Price stability and rapid growth.
References:

1) **Taylor, J.B., 2009.** Macroeconomics, South-western publishing Co. U.S.A.
   [Link](http://books.google.de/books?id=EG9Ze9xUi_4C&printsec=frontcover&dq=Macroeconomics&hl=en&sa=X&ei=h-4AU82APKvo4gTF7YDQCg&ved=0CDoQ6AEwAg#v=onepage&q=Macroeconomics)&f=false

   [Link](http://books.google.de/books?id=QjTFAgAAQBAJ&pg=PR14&dq=principles+of+economics&hl=en&sa=X&ei=mu4AU5n_LMTb4QTO6YBw&ved=0CC4Q6AEwAA#v=onepage&q=principles%20of%20economics&f=false)

**Course Name:** Agricultural Policy and Regulations (Code: EE0622)
**Prerequisite (EE0602)**

**Description:**
This course acquaints student with knowledge and understanding of the importance of agricultural policy in Egypt. The importance of regulations of farm activities, laws, protection policies such as floor prices of wheat, rice maize, cotton and sugarcane.

**Course Contents:**

1) Agriculture role in the Egyptian economy.
2) Agricultural policy for development, competitive structure and supply, supply market power and return of resources.
3) Expenditure patterns and demand.
4) Capital supply, subsidization of fact—i inputs, agricultural reform programs, income and mobility of labor.
5) Vertical expansion in agricultural by integrating farming and agricultural industries food, fiber textile.
6) Horizontal expansion by land reclamation.
7) Government regulations in agriculture, rent laws, free land rentlaw, trade regulations affecting crops, livestock, poultry, etc.
8) Protection of competition, laws tarrefs, export taxes property taxes and income tax.
9) Farmers protection measures such as floor prices of main crops such as wheat, maize cotton, rice and sugarcane.
10) Impute subsidies such as fertilizers subsidy and free irrigation water.
11) Food deficit in Egypt and agricultural policies to minimize the impact of food deficit.

References:
http://books.google.de/books?id=5ekLvH2HTLIC&q=Strategy+for+Agricultural+Development&dq=Strategy+for+Agricultural+Development&hl=en&sa=X&ei=tO4AU-aZLIzN4QTgx4GoAw&ved=0CDwQ6AEwAQ

http://books.google.de/books?id=p2O6AAAAIAAJ&q=Arab+Republic+of+Egypt:+An+Agricultural+Strategy+for+the+1990%27s&dq=Arab+Republic+of+Egypt:+An+Agricultural+Strategy+for+the+1990%27s&hl=en&sa=X&ei=04AU-qSCMn54QT884GwBg&ved=0CD0Q6AEwAQ

http://books.google.de/books?id=MwTtAAAAMAAJ&q=Agricultural+Policy+Analysis&dq=Agricultural+Policy+Analysis&hl=en&sa=X&ei=74AU_qSCMn54QT884GwBg&ved=0CD0Q6AEwAQ

Course Name: Agricultural Marketing (Code: EE0623 )
Prerequisite (EE0601)
Description:
This course extends knowledge of supply and demand for farm products and biotechnology products. Costs and prices of products are analyzed. Market regulations and market channels are mentioned.
Course Contents:
1) The framework of the marketing problem and analyzing agricultural and food markets.
2) Food consumption and marketing.
3) Food wholesaling and retailing.
4) Prices and marketing costs.
5) Types of agricultural biotechnology products.
6) Market concentration and marketing channels of products.
7) Exports of products.
8) Grading, packaging and requirements demanded by foreign importers.
9) Trade regulations and rules to be enforced.
10) New markets to encourage investments.
11) Food safety enforcement and product's hygienic requirements for protecting consumer's health.

References:

   http://books.google.de/books?id=uq1hl9VHBpoC&printsec=frontcover&dq=Marketing&hl=en&sa=X&ei=Bu8AU9GiDMOJ4ATT14G4CA&ved=0CC4Q6AEwAA#v=onepage&q=Marketing&f=false

   http://books.google.de/books?id=JQlgAAAAIAAJ&q=Marketing+of+Agricultural+Products&dq=Marketing+of+Agricultural+Products&hl=en&sa=X&ei=Ge8AU4OjKcHx4QTQ-oCoBQ&ved=0CDcQ6AEwAA

   http://books.google.de/books?id=kqSx3q801hcC&printsec=frontcover&dq=introduction+to+marketing&hl=en&sa=X&ei=LO8AU47eJci8ATg4YFY&ved=0CDQQ6AEwAQ#v=onepage&q=introduction%20to%20marketing&f=false

**Course Name: International Trade and Investments (Code: EE0624)**

**Prerequisite (EE0618)**

**Description:**
This course provides students with the scope of international trade and investment. The role of world exchange of goods and services through trade and investment the role of world trade and organization (WRO) on world trade and investment.

**Course Contents:**

1) The scope of international economics. The role of trade. Definition of international trade. International trade historical development. The difference between international and domestic trade.
2) The basics of international trade. Different theories of international trade: The classic theory, the new theory. The different items of world exchange.
4) The importance of the balance of payments. The reasons of the difference in the balance of payments. Markets and international exchange rates: definition, function and factors affecting the exchange rates.

5) The policies of trade. The free trade and trade protection. The scope of the qualifying industrial zone (QIZ) agreement. The impact of QIZ on Egyptian agricultural trade.

6) The world trade organization: structure and policy.


8) Direct foreign investment through international investors. Transfer of international payment and international financial centers.

9) Investment of multinational companies.

References:
http://books.google.de/books?id=jZkvAAAAQBAJ&dq=:International+Economics&hl=en&sa=X&ei=QQ8AU5OmCeL-4QSIoIDIDw&ved=0CEIQ6AEwAQ

http://books.google.de/books?id=YyW7AAAAIAAJ&q=International+Trade+%26+Investment+theory&dq=International+Trade+%26+Investment+theory&hl=en&sa=X&ei=aO8AU_X-KYGm4ASxu4AQ&ved=0CEAQ6AEwAQ

http://books.google.de/books?id=zIaS9R7HUGIC&printsec=frontcover&dq=International+Economics&hl=en&sa=X&ei=g-8AU472EMXk4QSPuICyAg&ved=0CEcQ6AEwAg#v=onepage&q=International%20Economics&f=false

Course Name: Electronic Marketing Extension (Code: EE0625)
Prerequisite (CJ1203)
Description:
This course provides students with understanding of the use of electronic tools in marketing extension.

Agribusiness
Course Contents:
1) The concept of agricultural marketing and electronic marketing extension.
2) Most important marketing operations performed on the agricultural crops and how they made electronically.
3) Reduction of marketing costs and losses during marketing operations of agricultural crops.
4) The objectives and areas of marketing extension tools and the importance of electronic marketing tools.

References:

Course Name: Economic Development (Code: EE0626)
Prerequisite (EE0618)
Description:
Students through this course will be acquainted with the economic problems of low income. They will be aware of the significant role of new capital investments and raising labor productivities for the welfare of Egypt.

Course Contents:
1) Definition of economic development.
2) Characteristics of underdeveloped countries, versus developed countries.
3) Economic development indicators. How to measure economic development.
4) Obstacles to development; poor infrastructure, lack of savings" small poor market, low purchasing power low productivity of resources, social factors, political factors.
5) Theories of developments, balanced versus unbalanced development, the vicious circle; The need for governmental economic policy.
6) Income distribution for investment, local and foreign.
7) Increasing productivity of labor.
8) International trade and economic development.

References:
   http://books.google.de/books?id=KVWxvUxy4YMC&printsec=frontcover&q=Development%20principles&dq=Development+principles&hl=en&sa=X&ei=xvEAU6ilJ9Hn4QSG_4CgAw&ved=0CDcQ6AEwAg#v=onepage&q=Development%20principles&f=false
   http://books.google.de/books?id=pg0hnQEACAAJ&dq=Economic+Development+principles&hl=en&sa=X&ei=2fEAU-zhGuGN4ASRp4CQAQ&ved=0CDwQ6AEwAQ

Course Name: Price Analysis (Code: EE0627)
Prerequisite (EE0623)
Description:
This course deals with identifying the factors determining prices. They are essential for price forecasting, decision making in production and marketing. Both price theory and business statistics are used in the analysis.

Course Contents:
1) The need for price analysis.
2) Factors determine the demand and the shift of demand.
3) Factors affecting costs of production and the supply.
4) Price equilibrium in free market.
5) Price determination under pure competition, monopolistic competition, monopoly and oligopoly.
6) Effects of price changes in demand and changes in costs.
7) Using indexes in price analysis.
8) Estimation of consumer price index and using it in calculating price index and money value.
9) Time series analysis of price including statistical methods for calculating price trend over time, and seasonal change pattern.
10) Government policies for adjusting prices and production.
References:

   http://books.google.de/books?id=37EoYgEACAAJ&dq=statistical+techniques+in+business+and+economics&hl=en&sa=X&ei=9PEAU-CfA-mu4ASaw4BQ&ved=0CDcQ6AEwAA

2) **Isabelle Tsakok 1990.** Agricultural Price Analysis.Cornell State University Press.
   http://books.google.de/books?id=E5vu4aBujY8C&pg=PA2&dq=Agricultural+Price+Analysis&hl=en&sa=X&ei=BPIAU_2VO4bp4gEseM4g&ved=0CDcQ6AEwAA#v=onepage&q=Agricultural%20Price%20Analysis&f=false

   http://books.google.de/books?id=IfmkQgAACAAJ&dq=Agricultural+Product+Prices&hl=en&sa=X&ei=GPIAU_2VO4bp4gEseM4gSeg4HgBQ&ved=0CDcQ6AEwAA#v=onepage&q=Agricultural%20Product%20Prices&f=false

**Course Name: Technology Transfer and Diffusion (Code: EE0605)**

**Prerequisite (EE0601)**

**Description:**

The course concerns technology transfer in agriculture: its concepts and how it is transferred, dissipated (defused) and the role of Agriculture extension bodies in this concern. Conditions for successful technology transfer process and examples of successful cases are included.

**Course Contents:**

1) Concepts and characteristics of agricultural biotechnology and its transfer.

2) Technology adaptation and dissemination (diffusion).

3) Stages and areas of technology transfer and conditions for its success.

4) Role of agricultural extension service in technology transfer and harmonization.

5) Nature of the relationships among the various systems which produce, transfer and use agriculture biotechnology.

6) Dissemination, diffusion and spreading of agricultural biotechnology.

7) Stages of technology transfer.

8) The technology transfer approach and the other alternatives: A comparative critic assessment.
9) Types of Agriculture extension system concerning technology transfer.
10) Cases of successful achievements in technology transfer as shown by research in agriculture extension.
11) Examples: for private entrances to study agricultural extension and technology transfer process (the entrance to the training and visit - the entrance of Cultural Relations).
12) Important proposals for enhancing and updating agriculture extension for biotechnology transfer in Egypt.

References:
http://books.google.de/books?id=stVTAAAAMAAJ&q=Biogas+Technology+Transfer+and+Diffusion&dq=Biogas+Technology+Transfer+and+Diffusion&hl=en&sa=X&ei=OflAU6PPI9Ku4QTr_oDoAw&ved=0CDwQ6AEwAA
http://books.google.de/books?id=ITNUAAAAMAAJ&q=Technology+Transfer+and+the+Diffusion+of+Innovations&hl=en&sa=X&ei=TvIAU7KVJ6Td4QTXkoFY&ved=0CDcQ6AEwAA

Course Name: Feasibility Studies and Project Evaluation (Code: EE0628) Prerequisite (EE0623)

Description:
This course provides students with the tools and methods of analysis of feasibility study of new projects. The tools of project evaluation to advance their success and to correct their direction to achieve projects progress and expansion for the benefits of impostors and society.

Course Contents:
1) Feasibility study of new projects includes environmental, technical, marketing financial and economic studies.
2) Environmental study: study conditions that may affect implementation of new projects.
3) Marketing study: assist project management in determining who will buy the projects products and in what quantity.
4) Marketing study must intake and analyses four components; product, price, place and promotion of the new products and competition in the market.
5) The technical study includes equipments, manpower needed and building.
6) Financial and economic study includes sources of finance self-finance credits and selling stocks and impact of the new project on society.
9) Evaluation of an investment project. Commercial profitability.

References:
http://books.google.de/books?id=1XgFAsUQXqlsC&printsec=frontcover&dq=project+management&hl=en&sa=X&ei=Y_IAU9ChIoai44ASI64HQDg&ved=0CDwQ6AEwAA#v=onepage&q=project%20management&f=false
http://books.google.de/books?id=bN9rmAEACAAJ&dq=Economic+Analysis+of+Agricultural+Projects&hl=en&sa=X&ei=i_IAU9ChIoai44ASI64HUtE&ved=0CCwQ6AEwAA

Course Name: Environmental Extension (Code: EE0629)
Prerequisite (EE0621)
Description:
This course gives students good understanding of environmental extension services to agriculture and rural community. Environmental protection measures of air, water, soil are explained.
Course Contents:
1) The concept of the environment - the ecosystem - the balance of the ecosystem - the protection of the ecosystem - environmental awareness.
2) Environmental extension - environmental pollution of Air, water and soil pollution.
3) Developed areas of environmental extension.
4) Contemporary environmental issues in agricultural extension.
5) Mechanisms to implement and achieve the objectives of the environmental extension. Specifications and qualifying guidelines in the field of environmental extension.
6) Axes strategy to activate the role of agricultural extension in the field of environmental protection. Indicative training requirements for the application of the laws and protect the environment from pollution.
7) Agricultural waste recycling to protect the environment from pollution. The use of the extension methods and aids cognitive development and environmental awareness.
8) The environmental and social effects of mutual agricultural activity.

References:
   http://books.google.de/books?id=EGxdWANxzt8C&printsec=frontcover&dq=rural+development&hl=en&sa=X&ei=sPIAU_PIL4zW4wSN8oDYDg&ved=0CDcQ6AEwAA#v=onepage&q=rural%20development&f=false

   http://books.google.de/books?id=v9OAMQEACAAJ&dq=Social+change+in+Rural+Society&hl=en&sa=X&ei=w_IAU6P_Luex4wTICGoBw&ved=0CDIQ6AEwAQ


Agribusiness
Course Name: Economics of Strategic Farm Products (Code: EE0630)
Prerequisite (EE0630)

Description:
This course provides students with knowledge of strategic farm products such as what, cotton, maize, livestock and poultry. The importance of these products to consumers and farmers and stability of the economy.

Course Contents:
1) Strategic farm products are grains, livestock, sugarcane, poultry and eggs and cotton.
2) Grain marketing. Grain production and uses/ the marketing channels/ grain grading/ grain storage/ structure and competition in the grain and oilseed product industries.
3) Livestock and meat marketing. Livestock production livestock products and meat consumption/ livestock assembly operations/ decentralization in the livestock and meat packing industries/ meat packing and processing/ meat wholesaling and retailing standardization and grading of livestock and meat/ livestock marketing problems.
4) Milk and dairy product marketing. Milk production and use/ products and consumption/ milk pricing/ fluid milk channels/ processed dairy product channels.
5) Poultry and eggs marketing. Production patterns/ poultry products, consumption, and prices/ integration in the poultry industry/ poultry and egg marketing channels.

References:
http://books.google.de/books?id=3g6gMwEACAAAJ&dq=Elements+in+livestock+Management+Techniques&hl=en&sa=X&ei=C_MAU_qTBqOsbA4ATN9IEQ&ved=0CDcQ6AEwAA
2) Kent, D. Olson, 2010. Economics of Farm Management, Willy Eastern limited.
http://books.google.de/books?id=1cmRLWtXlS8C&printsec=frontcover&dq=Economics+of+Farm+Management&hl=en&sa=X&ei=GvMAU8zVFouw4QTpxYHQ0Q&ved=0CDwQ6AEwAA#v=onepage&q=Economics%20of%20Farm%20Management&f=false
9. Courses of Department of Agricultural Engineering (AE11)

Course Name: Agricultural Engineering (Fundamentals) (code: AE1101)

Prerequisite (AE1102)

Description:

The course provides students with knowledge on application of engineering principles to problems in soil and water conservation, agricultural power units, machinery, agricultural electricity, structures, and animal environments. Material handling and processing of agricultural products are also covered.

Course Contents:

1) **Dimensions and units**: SI units and other systems of units.

2) **Irrigation and drainage basics**: Basic information of hydraulics, water sources – canal- and drain- nets in Egypt; importance of drainage. Types of drains, and comparisons between drains; planning and designing of drain-networks.

3) **Farm machinery and tractors science**: Introduction to mechanic fundamentals- tractor types; and farm machinery types and performance.


5) **Food processing engineering**: Basics of food rheology and engineering properties; thermodynamics and heat transfer and relationships with food processing.

6) **Farm buildings and environmental control basic knowledge**.

References:

1) **Yadav, S.N. 2011.** Agricultural Engineering: Fundamentals and applications. Biotech Books, Vedamb Books Ltd. New Delhi, India. [Link](http://books.google.de/books?id=rk4otwAACAAJ&dq=Agricultural+Engineering:+Fundamentals+and+applications&hl=en&sa=X&ei=fPMAU73sDKG64AS29oHoDw&ved=0CDkQ6AEwAg)

Course Name: Biomathematics (Code: AE1102)

Description:
This course focuses on the use of basic theories of mathematics in the biological science. It provides the student with knowledge about functions, curves, limits, curve fitting, differentiation, differential calculus, differential equations, mathematical series, matrix algebra and integration. Also, how to apply these topics in the biological science such as plant growth analysis, micro-organism development, the spread of diseases, population dynamics, and environmental data analysis.

Course Contents:

1) **Linear Algebra**: Matrices and Determinants. **Calculus**: Derivatives, integration, applications; partial derivatives; Fourier series. **Differential Equations**: Linear and non-linear first order ODEs; Higher order linear ODEs with constant coefficients; Cauchy's and Euler's equations; Laplace transforms; PDEs -Laplace, heat and wave equations.

2) **Methods**: Solutions of linear and non-linear algebraic equations; integration of trapezoidal and Simpson's rule; single and multi-step methods for differential equations.

References:

   [http://books.google.de/books?id=_RW8upYq1iUC&printsec=frontcover&dq=The+Theoretical+Biologist%27s+Tool+Box&hl=en&sa=X&ei=F_QAU6D-NsPX4ATRx4DwAg&ved=0CDAQ6AEwAA#v=onepage&q=The%20Theoretical%20Biologist's%20Tool%20Box&f=false](http://books.google.de/books?id=_RW8upYq1iUC&printsec=frontcover&dq=The+Theoretical+Biologist%27s+Tool+Box&hl=en&sa=X&ei=F_QAU6D-NsPX4ATRx4DwAg&ved=0CDAQ6AEwAA#v=onepage&q=The%20Theoretical%20Biologist's%20Tool%20Box&f=false)

   [http://books.google.de/books?id=3j0gu63QWmQC&printsec=frontcover&dq=introduction+to+the+Mathematics+of+Biology&hl=en&sa=X&ei=KPQAU5r6Elex4wTtyoDICg&ved=0CDUQ6AEwAQ#v=onepage&q=introduction%20to%20the%20Mathematics%20of%20Biology&f=false](http://books.google.de/books?id=3j0gu63QWmQC&printsec=frontcover&dq=introduction+to+the+Mathematics+of+Biology&hl=en&sa=X&ei=KPQAU5r6Elex4wTtyoDICg&ved=0CDUQ6AEwAQ#v=onepage&q=introduction%20to%20the%20Mathematics%20of%20Biology&f=false)
Course Name: Bio-System System Modeling and Simulation (Code: AE1103)
Prerequisite (AE1102)

Description:
Students will be taught basic concepts of system-analysis, modeling and computer simulation of agricultural and biological systems. Emphasis are on continuous simulation of dynamic models with examples that give students a broad exposure to dynamic models. An overview of applications of models in agricultural and biological systems are given.

Course Contents:
1) Introduction to systems and their types, analysis, models and kinds, Statistical and mechanistic models.
2) Controllable and non-controllable variables.
3) Parameters and model construction methodologies, verification, validation and model experimentation.
4) Examples of biological models; crop, livestock, food safety and machinery.

References:
http://books.google.de/books?id=rlwBCRSHObcC&pg=PA1&dq=Mathematical+Models+in+Agriculture&hl=en&sa=X&ei=PvQAU5KeOcLp4gTKqIGoAQ&ved=0CC4Q6AEwAA#v=onepage&q=Mathematical%20Models%20in%20Agriculture&f=false
http://books.google.de/books?id=0XQ_AAAAYAAJ&q=Systems+Simulation+in+Agriculture&hl=en&sa=X&ei=W_QAU87_HsSk4gSd4oHIBw&ved=0CDIQ6AEwAQ

Course Name: Aquaculture Engineering (code: AE1105)
Prerequisite (AE1102)

Description
Aquaculture (aqua-farming) is farming, under controlled conditions, of aquatic organisms (e.g. fish), and plants in water bodies. Students will be taught the engineering principles to enable them to understand design and operate different types of aquaculture farming systems.

Agribusiness
Course Contents:
1) site selection for aquaculture
2) aquaculture in open systems
3) water resource (water supply)
4) Water quality and environmental requirements
5) Fluid mechanics; pumps; aquaculture in ponds; raceway; recirculating aquaculture systems; aeration and oxygenation; aqua-ponics.

References:

Course Name: Farm Mechanization (Code: AE1108)
Prerequisite (AE1101)
Description:
This course is designed to introduce students to the various aspects of agricultural power and machinery used in the various agricultural production systems; field crops, horticultural crops and livestock production. Students also will be able to determine the appropriate mechanization systems prove to be technically applicable and economically feasible
Course Contents:
1) Farm tractors, soil tillage, laser leveling, seeders, planters, transplanters, inter-row cultivation techniques and harvesting systems
2) Mechanization systems for livestock production.
3) Selection, sizing and operational principles required in the use of appropriate mechanization systems
4) Cost analysis, and computer techniques for planning and management of agricultural machinery systems
Course Name: Farm Buildings (Code: AE1109)

Prerequisite (AE1101)

Description:
Effects of environment on animal production principles of environment control; feed handling systems; waste management alternatives; and planning functional, economical, and environmentally controlled livestock facilities will be explored.

Course Contents:

1) Introduction, types of farm buildings, livestock housing and associated environments.
2) Farm buildings materials, characteristics, and its selection
3) Straw bale housing.
4) Earth building materials and its characteristics.
5) Environmental control methods advantages, shortcomings and its cost.

References:

1) **Hunt, D. 2012.** Farm power and Machinery Management, CBS, publishers Distributors.  
   http://books.google.de/books?id=UTkXAAAAMBAJ&printsec=frontcover&q=Farm+power+and+Machinery+Management&hl=en&sa=X&ei=VvUAU8esHamN4wS534GIBg&ved=0CDwQ6AEwAA#v=onepage&q=Farm%20power%20and%20Machinery%20Management&f=false

2) **Meij, J.L. 1960.** Mechanization in Agriculture, North Holland Publishing Company.  
   http://books.google.de/books?id=PWJDAAAAIAAAJ&q=Mechanization+in+Agriculture&hl=en&sa=X&ei=aVUAU8U_U_qtXgBOqLgaAG&ved=0CC4Q6AEwAA

3) **Sanders J.H. 1974.** Mechanization and Employment in Brazilian Agriculture, 1950-1971, University of Minnesota, USA,  
   http://books.google.de/books?id=skmyAAAAIAAAJ&q=Mechanization+and+Employment&hl=en&sa=X&ei=efUAU-LZEOqL4ATyqYCwCg&ved=0CDUQ6AEwAQ

4) **P. Narasimha Rao 2003.** Economic efficiency and farm mechanization. Serials Publications, Michigan University, USA,  
   http://books.google.de/books?id=ohbtAAAAMAAJ&q=Farm%20Mechanization%20Books&source=gbs_similarbooks
References:

   http://books.google.de/books?id=_fN6nAEACAAJ&dq=Environmental control+for+Agricultural+Buildings&hl=en&sa=X&ei=j_UA9iZAcmc4wSNy4Eo&ved=0CDMQ6AEwAQ

**Course Name: Irrigation Systems (Code: AE1110)**

**Prerequisite (AE1101)**

**Description:**

The purpose of the course is to make students aware of the different types of on-farm irrigation systems and landscape will be covered. Planning, design and operation of surface, sprinkler and drip irrigation systems for field crops and horticulture. Pipeline design, connections and pump selection are discussed in detail so that students can improve their existing ability and confidence to advise clients in connection with their specific agribusiness needs.

**Course Contents:**

1) Types of irrigation systems, Surface irrigation, planning, design and evaluation.
2) Drip irrigation system, planning, design and evaluation.
3) Sprinkler irrigation system, planning, design and evaluation. Water use efficiency. Pumps and wells evaluation capacity.
4) Selection of the appropriate system based on cost, return and economic feasibility.

**References:**

   http://books.google.de/books?id=Ki6iAQAAACAAJ&dq=Principles+of+Farm+Irrigation+Systems&hl=en&sa=X&ei=0fUA9U7rWN4qX5ATVzYGICQ&ved=0CDwQ6AEwAA

   http://books.google.de/books?id=Idg2PQAACAAJ&dq=Design+and+Operation+of+Farm+Irrigation+Systems&hl=en&sa=X&ei=5_UAU9aQEO Pw4QT24oHYDw&ved=0CC4Q6AEwAA
10. Courses Department of Agronomy (AG01)

Course Name: Agronomy 1 (Fundamentals) (Code: AG0101)

Prerequisite (AB0801)

Description:

The aim of the course is to ensure that students develop knowledge, understanding and skills related to crop origin, classification, environmental factors, seed bed preparation, sowing methods, fertilization, irrigation, harvesting process, weed control and principles of crop breeding.

Course Contents:

1) Crop origin and classification.
2) Crop distribution in Egypt and in the world.
3) Environmental factors affecting crop growth.
4) Seed-bed preparation.
5) Sowing methods.
6) Replanting and thinning.
7) Fertilization and irrigation.
8) Weed control.
9) Crop rotation
10) Methods of crop breeding.

References:


http://books.google.de/books?id=RwV6cgAACAAJ&dq=Permaculture:+Principles+and+pathways+beyond+sustainability&hl=en&sa=X&ei=1Dv3UuLCKonDtAb7llHwCQ&ved=0CDcQ6AEwAA


http://books.google.de/books?id=zS0hAQAAMAAJ&q=Principles+of+field+crop+production&dq=Principles+of+field+crop+production&hl=en&sa=X&ei=8zv3UqyBPIKftAav3YGgDw&ved=0CC4Q6AEwAA

Course Name: Agronomy 3 (Crop (Production) (code: AG0103)

Prerequisite (AG0101)

Description:

Dealing with the importance of field crops and their role in fulfilling the basic needs for humans and animals. Studying the environmental requirements for economic crops. Studying cultural practices for crops (pre-and post-harvest).
Course Contents:

1) Economic Importance of and botanic description field crops.
2) Environment factors (biotic and abiotic) and relationship with agricultural practices.
3) Appropriate cultural practices important Egyptian crops (e.g. wheat, rice, maize, faba-bean, berseem, cotton, flax, peanut, sugar cane and sugar beet.
4) Harvesting processes in different field crops.

References:

http://books.google.de/books?id=zL86AAAAAMAAJ&q=Production+of+field+crops&dq=Production+of+field+crops&hl=en&sa=X&ei=Mjz3Uv_JKsTnswbkuYGIBQ&ved=0CDUQ6AEwAQ

http://books.google.de/books?id=zS0hAQAAMAAJ&q=Principles+of+field+crop+production&dq=Principles+of+field+crop+production&hl=en&sa=X&ei=RDz3UouMHJKHswbCwICgAw&ved=0CC4Q6AEwAA

http://books.google.de/books?id=dpsOr62_16wC&printsec=frontcover&dq=Crop+yield&hl=en&sa=X&ei=Vzz3Ut3yGIqJtQb-oYGABg&ved=0CFsQ6AEwCA#v=onepage&q=Crop%20yield&f=false

Course Name: Crop Rotation and Intensification (Code: AG0107)
Prerequisite (AG0101)
Description:
Principles of Agronomy. providing students with knowledge, understanding and experience relating to p aiming crop rotations in the different regions of Egypt and utilizing the positive effects of rotations in the biological control of plant enemies. Also, studying the benefits of and crop intensification of different field crops in Egypt.

Course Contents:

1) Crop rotations in the world and in Egypt.
2) Benefits of Crop Rotations
3) Residual effect, harvest residues and soil fertility
4) Effect of continuous cropping (Monoculture)
5) Role of crop rotations in reducing soil and plant pollution
6) Land use in (-Egypt. Structure of the crop area. Development and characteristics. Legislative measures organizing crop rotation
7) Characteristics of a good rotation
8) Crop rotations in the main growing areas in Egypt
9) Structure of crop area in Egypt and Kalubia Governorate.
10) Crop intensification, definitions, advantages and problems
11) Intercropping as means for intensification. Patterns of intercropping
12) Competitive relationships and yield advantages of mixed cropping
13) Biological evaluation of mixed cropping. Net return and monetary advantage

References:
http://books.google.de/books?id=20snAQAAMAAJ&q=Crop+Rotation&dq=Crop+Rotation&hl=en&sa=X&ei=cvYAU4_XLKOs4ATN9IEQ&ved=0CCwQ6AEwAA
2) **Mohler, C. and Johnsons, 2009.** Rotation on organic Farms, National Resource, Cornell University, N.Y. U.S.A.  
http://books.google.de/books?id=N6vVxQrE6X8C&pg=PA114&q=Rotation+on+organic+Farms&hl=en&ei=hPYAU8LQKYiM4wSlvYGYDw&ved=0CDcQ6AEwAA#v=onepage&q=Rotation%20on%20organic%20Farms&f=false

Course Name: Forage Crop Production and Pasture Management (Code : AG0108)

Prerequisite (AG0103)

Description:

The aim of the course is to provide the students with knowledge, understanding and skills related to production of the different forage crops as well as improving and managing pasture production.

Course Contents:

1) The importance of forage crops and pastures.
2) Studying the botany, botanical classification of species, varieties, sowing methods seedling rate, sowing dates, suitable cultural practices before and after sowing, forage yield and chemical composition of different forage crops.
3) Studying the Egyptian natural pastures and their potential use and development.
11. Courses of Department of Animal Production (AP03)

Course Name: Animal Production 1 (Physiology) (Code: AP 0301)
Prerequisite: (PP0401)
Course Description:
The course defines functions of animal body systems such as circulatory, digestive, respiratory and reproductive systems.

Course Contents:
1) Animal cell.
2) Homeostasis.
3) Heat regulation.
4) The circulation system.
5) The respiratory system.
6) The nervous system.
7) The digestive system.
8) The excretory and urine system-
9) The endocrine glands.
10) The reproduction system.

References:
http://books.google.de/books?id=Po0zyO0BFzwC&printsec=frontcover&q=Guyton+and+Hall+Textbook+of+Medical+Physiology&hl=en&sa=X&ei=xfYAU_HmFOGD4ASztYHgAQ&ved=0CC4Q6AEwAA#v=onepage&q=Guyton%20and%20Hall%20Textbook%20of%20Medical%20Physiology&f=false
Course Name: Animal Production 2 (Dairy & Meat) (Code: AP 0302)
Prerequisite (AP 0301):

Course Description:
The course involves identification of the importance of meat and milk and the obstacles involved. It teaches students the skills to establish farm animal flocks for dairy and meat production. Functions of different reproductive stages in farm animals are mentioned and methods of natural and artificial insemination are included.

Course Contents:
1) Introduction to animal production in Egypt.
2) Reproduction in dairy cattle.
3) Reproductive stages in cows and hormones of regulation.
4) Milk lactation in cows; udder structure; factors affecting milk yield and components.
5) Causes of low reproductively and sterility in dairy cattle herds.
6) Establishing milk farms.
7) Importance of meat for humans; world meat production and consumption.
8) Beef cattle production systems; commercial classification of meat productions; meat productions in Egypt.
9) Beef carcass grades and cuts; dressing and boneless meat percentage.
10) Sheep growth, production and classification and growth parameters. Mutton (sheep meat); sheep feeding system and sheep carcass.
11) Sheep wool.
12) Breed methods selection.

References:
Course Name: Animal Production 3 (Poultry) (Code: AP 0303)

Prerequisite: (AP 0301)

Course Description:
The course covers the importance of poultry industry, and gives a general description of poultry farms, and the reproductive aspects of poultry. Incubation, brooding and factors affecting meat and egg production are included along with the productive performance of poultry birds.

Course Contents:
1) The poultry industry.
2) Biology of domestic fowl.
3) Reproduction of birds.
4) Incubation and hatcher management.
5) Brooding and rearing.
6) Poultry houses and equipment.
7) Meat production
8) Egg production and Egg quality.

References:


http://books.google.com.eg/books/about/Poultry_Genetics_Breeding_and_Biotechnol.html?id=0K8GHzI1Z3MC&redir_esc=y

**Course Name:** Animal Production 4 (Fish) (Code: AP 0304)

**Prerequisite:** (GE 1001)

**Course Description:**

The course gives descriptions on the operations associated with fish production means of the aquaculture technology as well as fisheries.

**Course Contents:**

1) Development of fish resources in Egypt.
2) Marine fish resources.
3) Inland lake fisheries.
4) Aquaculture constraints in Egypt.
5) Relationship between water quality and fish activities.
6) Fish migration and reproduction.
7) Methods of fish culture, and kinds of fish farms.
8) Cages and pens, fish culture in rice fields.
9) Integrated fish culture and duck farms.
10) Fish marketing
11) Fish disease.

**References:**


12. **Courses of Department of Food Science (FS07)**  
Course Name: Food and Dairy Science Fundamentals (Code: FS0701)  
**Prerequisite** (CJ1201 or AC 0901)  
**Description:**  
The course aims at acquainting students with fundamentals of food science, importance of food and food products (non-dairy and dairy). Processing from raw materials, chemical reactions, biochemical properties and sanitations. Methods to preserve food. Theory and practice of food manufacture

**Course Contents:**
1) Introduction, food manufacture, food spoilage and industrial solutions.  
2) Food manufacture in Egypt and Arab countries, and food deficiency.  
3) Food components.  
4) Food preservation, by chilling, freezing, drying, additives and canning.  
5) Cereal technology and bakery products  
6) Edible-oil technology  
7) Carbonated beverages, juice, and jams.  
8) Manufacture of condensed and dried milk.  
9) Milk, as food and an agricultural product.  
10) Milk chemical composition.  

**References:**
http://books.google.de/books?id=DzMhwchiTMMC&printsec=frontcover&dq=Essential+of+Food+Science&hl=en&sa=X&ei=YvcA---KH4eJ5ASzhYCIAw&ved=0CDUQ6AEwAA#v=onepage&q=Essential%20of%20Food%20Science&f=false

2) **Walstra, P., Wouters, J.T. and Geurts, T.J. 2006.** Dairy Science and Technology. 2nd Ed CRC/Taylorand Francis Group. NY, USA.  
http://books.google.de/books?id=xAublgEnwOYC&printsec=frontcover&dq=Dairy+Science+and+Technology.&hl=en&sa=X&ei=dPcAU7jnKMSC4ASKt4CYBw&ved=0CDoQ6AEwAg#v=onepage&q=Dairy%20Science%20and%20Technology.&f=false
Course Name: Food Technology (Code: FS0725)
Prerequisite (FS0701)

Description:
1) Provides students with an appreciation and understanding of the food technology applications.
2) Provides students with an appreciation and understanding of the causes of spoilage of foods.
3) Provides students with an appreciation and understanding of the classification of foods.
4) Provides students with an appreciation and understanding of demand properties in raw foods before preservation.
5) Provides students with an appreciation and understanding of the using methods preservation and scientific principals in foods.
6) Provides students with an appreciation and understanding of the how to obtain raw material foods.
7) Provides students with an appreciation and understanding of the preparation methods for raw material foods.

Course Contents:
1) Classification and Source of raw food materials and relation to keeping quality stability.
2) Preparation of raw materials.
3) Classification of preservation methods.
4) Refrigeration, freezing, drying, canning, irradiation and food additives.
5) Hydrostatic pressure, Ohmic, infrared heating and Freeze-drying. Cereals technology.
6) Edible technology.
7) Meat and poultry technology.
8) Fermented food technology.

References:
http://books.google.de/books?id=4DhbnFAc8xC&printsec=frontcover&dq=food+technology&hl=en&sa=X&ei=JPgAU4GaCIlf14QT04YDICg&ved=0CDgQ6AEwAg#v=onepage&q=food%20technology&f=false
2) **Jill Robinson 2001.** Food Technology (Design & Make It). Nelson Thornes; Revised edition (December 2001).

http://books.google.de/books?id=C6FoGPh7EgYC&printsec=frontcover&q=food+technology&hl=en&sa=X&ei=JPgAU4GaCIlf14QT04YDlCg&ved=0CEQQ6AEwBA#v=onepage&q=food%20technology&f=false

**Course Name: Dairy Technology (Code: FS0726)**

**Prerequisite (FS0701)**

**Description:**

1) Importance of milk as food and agricultural product, chemical composition, and production of milk with high quality.

2) Using some different methods to preserve some foods.

3) Exposing to some components of food and dairy processing from raw materials, chemical reactions, biochemical properties and sanitations.

4) Qualify the students in the field of food and dairy processing is exposed to some components of food processing.

5) Provide the students with the technical officers in the field of food and dairy industry.

6) Emphasizing the students with theory and practice of food manufacture covering some product categories.

**Course Contents:**


2) Food manufacture in Egypt and Arab countries – studying the deficiency of food.

3) Food components overview.

4) Preservative of food by chilling, freezing, drying, additives and Canning.

5) Cereals technology and some bakery's products.

6) Edible Oil technology.

7) Carbonated beverages, juice, jams condensed juice.

8) Importance of milk as food and agricultural product.

9) Chemical composition of milk.

10) Production of milk with high quality.

11) Milk handling at different locations (i.e. farms, transportation, collection centers etc.)

12) Heat treatments of milk.

13) Manufacturing of condensed and dried milks.
Reference:
http://books.google.de/books?id=WorGTC1YjsIC&printsec=frontcover&dq=Milk+Products,+Technology+and+Microbiology&hl=en&sa=X&ei=7fcAU5-8HqvZ4QTOk4CoDQ&ved=0CC4Q6AEwAA#v=onepage&q=Milk%20Products%2C%20Technology%20and%20Microbiology&f=false
http://books.google.de/books?id=BuR28YS4SMC&printsec=frontcover&dq=Technology+of+Dairy+Products&hl=en&sa=X&ei=A_gAU5GGAYKF4ATNz4HoBw&ved=0CDcQ6AEwAA#v=onepage&q=Technology%20of%20Dairy%20Products&f=false

13. Courses of Department of Genetics (GE 10)

Course Name: Genetics 1 (Fundamentals) (Code: GE1001).
Prerequisite: (AE1102)
Course Description:
The course gives the student the principles of the science of genetics. An overview of genetics starting from the Mendel time up to date. The different of genetics, the classical, molecular, and evolutionary are given.

Course Contents:
1) Introduction and historical overview.
2) Mendelism and the chromosome theory.
3) Extension of Mendelism.
4) Linkage and Crossing-over.
5) Allelic variation and gene function.
6) Non-Mendelian inheritance and cytoplasmic factors.
7) Pedigree analysis.
8) Chromosomol variations.

References:
1) ACQUAAH G, 2012. Principles of Plant Genetics and Breeding, John wile & Sons Ltd.
http://books.google.de/books?id=Si-qqaSeNePIC&printsec=frontcover&dq=Principles+of+Plant+Genetics+and+Breeding&hl=en&sa=X&ei=9vkAU7KwI8Xn4gSIh4FY&ved=0CC4Q6AEwAA#v=onepage&q=Principles%20of%20Plant%20Genetics%20and%20Breeding&f=false
   [http://books.google.de/books?id=GVgUSgAAACAAJ&dq=Genetics:+Analysis+and+principles&hl=en&sa=X&ei=3vL3UtH0HMW0tQaR44Aw&ved=0CDIQ6AEwAQ](http://books.google.de/books?id=GVgUSgAAACAAJ&dq=Genetics:+Analysis+and+principles&hl=en&sa=X&ei=3vL3UtH0HMW0tQaR44Aw&ved=0CDIQ6AEwAQ)

3) **Daniel L. Hartl and Maryellen Ruvolo 2011.** Analysis of genes and genome. Jones & Bartlett Publishers, pp 860 pages, 
   [http://books.google.de/books?id=0J9eyuzCP4gC&printsec=frontcover&dq=inauthor:%22Maryellen+Ruvolo%22&hl=en&sa=X&ei=PgT6UqaZFKPp4gT9oGgCQ&ved=0CC0Q6wEwAA#v=onepage&q&f=false](http://books.google.de/books?id=0J9eyuzCP4gC&printsec=frontcover&dq=inauthor:%22Maryellen+Ruvolo%22&hl=en&sa=X&ei=PgT6UqaZFKPp4gT9oGgCQ&ved=0CC0Q6wEwAA#v=onepage&q&f=false)

**Course Name: Genetically Modified Food (code: GEO1007)**

**Prerequisite (GE 1001)**

**Description:**

The course aims at teaching students genetic modification of food and edible organisms. Methods of genetic modification, plant and animal are given. Ethics and controversies over genetic modification, molecular engineering, and genetic engineering problems are given.

**Course Contents:**

1) Introduction to genetic modification and terminology.
2) Methods of genetic modification.
3) Genetic modification of bacteria, plants and animals: Policies and controversies involved.
4) Genetic modification in agriculture, and transgenic plants.
5) Genetically-modified food application.
6) Ecological impact of transgenic plants.
7) Organic food: types and identification.

**References:**


2) **Pence, G.E. 2002.** Designer foods: Mutant harvest or bread basket of the world?. Rowman & Littlefield Publ. Inc. Lanham, MD, USA.
   [http://books.google.de/books?id=QsTsXW9vJKEC&printsec=frontcover&dq=Designer+foods%3A+Mutant+harvest+or+bread+basket+of+the+world&hl=en&sa=X&ei=vd3UqL3A8PWtQbx84DIBA&ved=0CDAQ6AEwAA#v=onepage&q=Designer%20foods%3A%20Mutant%20harvest%20or%20bread%20basket%20of%20the%20world&f=false](http://books.google.de/books?id=QsTsXW9vJKEC&printsec=frontcover&dq=Designer+foods%3A+Mutant+harvest+or+bread+basket+of+the+world&hl=en&sa=X&ei=vd3UqL3A8PWtQbx84DIBA&ved=0CDAQ6AEwAA#v=onepage&q=Designer%20foods%3A%20Mutant%20harvest%20or%20bread%20basket%20of%20the%20world&f=false)
Course Name: Plant Breeding (Code: GE1008)
Prerequisite (GE1001)
Description

Introduction to plant breeding-history, objectives, achievements in the pre-Mendelian era, post-Mendelian plant breeding, potential and opportunities. Introduction, domestication and acclimatization. Patterns of evolution in crop plants, Centres of origin, gene pool concept - primary, secondary and tertiary gene pool, and gene introgression. Plant genetic resources:

Importance of plant genetic resources and diversity in plant breeding, collection, evaluation and conservation of germplasm.

Modes of reproduction in plants - asexual & sexual reproduction, self and cross- pollination mechanisms, male-sterility and self incompatibility. Genetic bases of plant breeding : Genetic consequences of self and cross fertilization, genetics of self incompatibility. Mating systems - genetic &phenotypic assortative and disassortative matings and their genetic consequences; Qualitative & quantitative traits and their genetic behavior in segregating populations; Components of variation, single gene and multiple gene concepts, epistasis and gene interactions;

Course Contents:

1) Floral biology in self and cross pollinating crop species; selfing and crossing techniques in major field crops; determination of extent of outcrossing, male sterility - detection & maintenance; self- incompatibility and techniques of maintenance and overcoming sporophytic and gametophyticin compatibility.

2) Selection methods in segregating populations, selection differential and intensity - demonstration of their relationship and effect on genetic gain.

3) Evaluation of breeding material, screening for quality traits, resistance/tolerance to biotic & abiotic stresses.
4) Demonstration of quality seed production through nucleus and breeders seed production techniques.
5) Heritability and genetic advance; Selection - responses to selection, selection differential, intensity and realized advance; Heterosis - concept and theories, inbreeding depression.
6) Methods of breeding self-pollinated, cross-pollinated and asexually propagated crops; Land races, pure line selection and mass selection; Pedigree selection, bulk method and its modification; Hybrid breeding, populations and population improvement, intra and inter population improvement; Clonal selection.
7) Mutation breeding, use of polyploidy and distant hybridization in plant breeding.
8) Mechanisms and genetic bases of resistance/tolerance to biotic and abiotic stresses in plants, breeding for resistance/tolerance.
9) Application of biotechnology to plant breeding - embryo rescue, somaclonal variation, doubled haploid, protoplast fusion, transgenics, molecular plant breeding, biosafety issues involved with genetically modified organisms.
10) Release and registration of new varieties, quality seed - classes, production practices and maintenance of pure seed, seed purity standards, UPOV convention and convention on biodiversity.

References:
   http://books.google.de/books?id=saieMwEACAAJ&dq=Plant+Breeding & Principles+and+Methods&hl=en&sa=X&ei=i_oAUKKB6am4gTP74DIBA&ved=0CC4Q6AEwAA
   http://books.google.de/books?id=fPXwAAAAMAAJ&q=Principles+of+Cultivar+Development&dq=Principles+of+Cultivar+Development&hl=en&sa=X&ei=oPoAUVbwBwBaPa4AS48oHIAw&ved=0CCwQ6AEwAA
   http://books.google.de/books?id=1VPUNIlrFYgC&q=Breeding+Field+Crops&hl=en&sa=X&ei=svoAU7uzBoXB4wTLIoGoDQ&ved=0CC4Q6AEwAA
14. Courses of Department of Horticulture (HO0201)
Course Name: Horticulture 1 (Fundamentals) (Code: HO0201)
Prerequisite (AB0801)

Description:

The course involves description of structure, growth, development maintenance, and use of horticultural plants, propagation, environment, greenhouse and nursery activities. Old and new trends.

Course Contents:
1) An overview of the horticulture Industry and the economic importance.
2) Subdivisions. Morphology, anatomy and biology of horticultural plants.
3) Processes of growth and development.
4) Plant growth phases and growth structures of greenhouses, and hotbeds.
5) Light, water, and nutrients in relation to horticulture plant growth.
6) Sexual and asexual propagation.
7) Micro-propagation.
8) Nurseries and bedding plants.
9) Survey of the important Horticultural Industries.
11) Biotechnology & new trends in the industry.

References:
Course Name: Horticulture 6 (Post-harvest Technology) (Code: HO 0206)
Prerequisite (HOo201)

Description:
Morphology, structure, composition & nutritional value of fresh fruits & vegetables, physiology & biochemistry, maturity and ripening, storage atmosphere, Temperature, humidity, and physiological and pathological disorders, packing house management, plant growth regulators, precooling, technology of storage and transportation.

Course Contents:
1) Morphology & structure of fresh fruits and vegetables. Composition & nutritional value.
2) Physiology & biochemistry.
3) Physiological responses to temperature & humidity. Maturity, ripening & quality evaluation.
5) Physiological & pathological diseases.
6) Packing technology & transportation.
7) Local & foreign markets.

References:

http://books.google.de/books?id=Ws_SQUB5tj0C&printsec=frontcover&q=Post-harvest+technology+of+horticultural+crops


Course Name: Horticultural Crop Production (Code: HO0209)

Prerequisite (HO0201)

Description:

Commercially important fruit crops, vegetables, ornamental, medicinal and aromatic plants produced for local and export markets. Areas of production, cultural operations and management. Harvesting and marketing. Role of cooperatives and extension services.

Contents:

1) Study includes importance of some major fruit crops, vegetable crop, ornamental, medicinal and aromatic plants.

2) Areas of production.

3) Climate, soil & water requirements.

4) Planting, cultural operations and management for efficient plant performance and production.

5) Harvesting and marketing.

6) Role of cooperatives and extension services in promotion of the industry.

References:

1) **Cabison, S. 2009.** Organic fruit production and viticulture. Crowood Press, Ltd., Marlborough, UK.

http://books.google.de/books?id=MTNRPgAACAAJ&q=Organic+fruit+production+and+viticulture

Agribusiness
Course Name: Protected Vegetable Production (Code: HO0210)

Prerequisite (HO0201)

Description:


Course Contents:
1) Factors affecting vegetables growth under protected culture.
2) Method of plant protection in protected culture.
3) Using low tunnels in vegetable crops production.
4) Method of planting seeds in protected culture.
5) Structure and types of greenhouses.
6) Covering materials for greenhouses.
7) Studies on some vegetable crops grown under protected
    Protected vegetable crops (Tomato, pepper and eggplant
growing under greenhouses, Cucumber, and sweet melon, Common
bean and sweet peas, Strawberry, Mushroom, Lettuce).

References:
    http://books.google.de/books?id=80cIHQAACAAJ&dq=Tunnel+Grower
    s+Handbook+for+Egypt&hl=en&sa=X&ei=rfsAU_uvA6OA4gTQhoHY
    Cg&ved=0CC4Q6AEwAA

15. Course of Department of Plant Protection (PP04)
Course Name: Zoology (Code: PP0401)
Description:
The present course aims to survey the major taxa of the animal kingdom
and provide an introduction to animal anatomy, physiology, ecology and
evolution. Establish a knowledge base for biological sciences through
developing an understanding of the principles of animal cell and taxonomy with
emphasis on the knowledge of the characteristics of the major phyla of animals.
Promote an appreciation of the most important animal parasites affects human,
animal and plant life and its economic significance. Introduce the structure and
function of the principal body systems of animals. Develop laboratory skills
necessary for biological study.
Course Contents:
1) Introduction.
2) Nature and manifestation of life, the cell and its division.
3) Embryonic development.
4) Symmetry in animals and Animal taxonomy.
5) Protozoa general morphology.
6) Parasites (Trypanosoma, Entamoeba, Plasmodiophora, Sporongospora and
    plasmodium).
7) Parazoa and metozoa; Types oand division.
8) Phyla: Platyhelminthes; Nematoda; Annelida; Arthropoda; Mollusca; Chordata.

References:
1) **Springer, J., 2012.** An Introduction to Zoology, Johns and Barlet publishers. http://books.google.de/books?id=uID05JQqG-wC&printsec=frontcover&q=An+Introduction+to+Zoology&hl=en&sa=X&ei=-fsAU_v_NejW4gT6qYBo&ved=0CC4Q6AEwAA#v=onepage&q=An%20Introduction%20to%20Zoology&f=false


**Course Name: Entomology General (code: PP 01102)**

**Prerequisite:** (PP 0401)

**Description:**

The course aims to provide knowledge to students about insects, their importance and effects in human life, their body and appendages, anatomy, external and internal morphology, ecology, classification and taxonomy.

**Course Contents:**

1) Introduction.
2) Taxonomical position.
3) Distribution of insects.
4) Harms and benefits of insects.
5) Main parts of insect body and appendages.
6) External morphology (Head: mouth-parts, antennae and ocelli; Thorax: segments, legs and wings; Abdomen: segments, cerci and male and female genitalia).
7) Internal anatomy and systems (digestive, respiratory, circulatory, reproductive and nervous systems).
8) Ecology (life-cycle, distribution, immature stages).
9) Classification: Common insects of economic value; Insects harmful to agriculture and stored products and methods of their control. Beneficial insects (honey bee, silkworm, predacious and parasitic insects).

References:
   http://books.google.de/books?id=HVMfnQEACAAJ&dq=An+Introduction+to+the+Study+of+Insects&hl=en&sa=X&ei=X_0AU_XODKeK5ATTqIDQBg&ved=0CDoQ6AEwAg
   http://books.google.de/books?id=YTcJPwfYGzgC&dq=Invertebrate++zoology&hl=en&sa=X&ei=f0D3UuWNNcPbswaN34GYCw&ved=0CC4Q6AEwAA
   http://books.google.de/books?id=uU0gAQAAMAAJ&q=Entomology+in+Human+and+++Animal+Health&dq=Entomology+in+Human+and+++Animal+Health&hl=en&sa=X&ei=SAcBU9zTE8Wz4AS3j24DQDg&ved=0CDQQ6AEwAQ
   http://books.google.de/books?id=7gcWAAAAIAIAJ&q=Agricultural+Entomology&dq=Agricultural+Entomology&hl=en&sa=X&ei=Q_0AU5m1KKOl4ASj24DQDg&ved=0CDQQ6AEwAQ

Course Name: Economic Entomology (Code: PP 0403)
Prerequisite: (PP 0402)

Course Description:
The course concerns insects attacking economic crops (field crops or horticulture crops), or crop products including store insects (e.g. grain stores). Description and behavior of these insects and methods of controlling their harmful effects are included.

Course Contents
1) Introduction to the different control methods.
2) General and polyphagous insect pests.
3) Insects attacking field crops.
4) Vegetable crops insect pests.
5) Orchard or fruit trees insect pests.
6) Wood trees insect pests.
7) Ornamental plant pests.
8) Medical and aromatic plant pests.
9) Stored products pests.
10) The most important methods and materials used to minimize the pest population under economic injury level.

References:


Course Name: Integrated Pest Control (code: PP 0404)
Prerequisite (PP0402)
Description:
The course provides students with knowledge on management of integrated pest control which includes a range of practices to control or suppress pest population below the economic injury level. The course also focuses on minimizing the risk of pesticides to human health and environment.
Course Contents:

1) Integrated pest management (IPM), and its advantages.
2) Problems of repeated use of pesticides.
3) Identification, inspection and survey of insect pests.
4) Monitoring of targeted pests.
5) Acceptable pest levels.
6) Preventive practices.
7) Control means (Mechanical, Biological, Animal and Behavioral).
8) Legislations.
9) Predacious and parasitic mites Families (e.g. Stigmatidae and Eudopsellidae).
10) Parasitic mites Families (e.g. Pymotidae, Acarphaenacidae).
11) Isolation and mass rearing of predacious mites.
12) Formulation and storage technology
13) Entomopathogenic nematodes: Nematode families: Mermithidae,
14) Steinernematidae, Heterorhabditidae
15) Rodents and snails: Bait formulation for rodents and snails.
16) Application of commercial products
17) Pheromones in pest management and resistant to them.
18) Commercial phormones: Problems and benefits.
19) Injury levels and economic threshold of infestation.
20) Using pesticides as a final option.
21) Integration of methods.

References:

Course: New Approach in Pest Control (Code: PP0409)

Prerequisite (PP0402)

Description:

The course provides students with knowledge on management of integrated pest control which includes a range of practices to control or suppress pest population below the economic injury level. The course also focuses on minimizing the risk of pesticides to human health and environment.

Course Contents:

1) Integrated pest management (IPM), and its advantages.
2) Problems of repeated use of pesticides.
3) Identification, inspection and survey of insect pests.
4) Monitoring of targeted pests.
5) Acceptable pest levels.
6) Preventive practices.
7) Control means (Mechanical, Biological, Animal and Behavioral).
8) Legislations.
9) Predacious and parasitic mites
10) Predacious mites Families (e.g. Stigmatidae and Eudopsellidae).
11) Parasitic mites Families (e.g. Pymotidae, Acarophaenacidae).
12) Isolation and mass rearing of predacious mites.
13) Formulation and storage technology
14) Entomopathogenic nematodes: Nematode families: Mermithidae, Steinernematidae, Heterorhabditidae
15) Mass production technology.
16) Rodents and snails: Bait formulation for rodents and snails.
17) Application of commercial products
18) Pheromones in pest management and resistant to them.
19) Commercial phormones : Problems and benefits.
20) Injury levels and economic threshold of infestation.
21) Using pesticides as a final option.
22) Integration of methods.

Reference:

http://books.google.de/books?id=Fv9jtwAACAAJ&dq=Scientific+Guide+to+Pest+Management+Operations&hl=en&sa=X&ei=_gcBU7usHumY4wTSqIDYAQ&ved=0CEEQ6AEwAA

Course: Honey Bees and Products (Code: PP0411)
Prerequisite (PP0402)
Description:
This course focuses on supply students with different skills on honey bee rearing and production.

Course Contents:
1) Economic importance of honeybees.
2) Types of honey bees.
3) Management of honey bee colonies.
4) Products of honeybees different (honey, pollen, royal jelly, propolis, bee venom, bee wax).
5) Scientific basis and new methods of honey bees production.
6) Recent methods for keeping of honey bee products.
7) Pests and diseases causing and attacking honey bee.
8) Important methods to protect and trial honey bees.
Reference:

   http://books.google.de/books?id=jMtQRAAACAIAJ&dq=Bee+Genetics +and+Breeding&hl=en&sa=X&ei=GAgBU9H8HuqQ4gShvIDQDA&ved=0CC4Q6AEwAA

2) **Taber, S., 1987.** Breeding Super Bees, A.I. Root Co., Ohio, U.S.A.
   http://books.google.de/books?id=aR5CcAAACAIAJ&dq=Breeding+Super+Bees&hl=en&sa=X&ei=RAgBU83YAe2u4QSnrYHAAQ&ved=0C
   DUQ6AEwAA

16. Courses of Department of Soils (SO 05)
Course Name: Soil and Water Science (Code: SO 0501)
Prerequisite (AC0901)
Description:

Provide students with knowledge, understanding and skills related to fundamentals of soil science soil science. Different concepts of soil are to be viewed. Properties of soil, biological, physical, chemical and the modern classification of soil Taxonomy will be involved. Different pare3meters including soil organic matter, soil microbial biomass as a fertility parameter will be reviewed. Also gives a thorough knowledge, understanding and skills related to water, factors affecting water use, water and the environment, and options for the future.

Course Contents:

1) Concepts of soil.
2) Soil formation and classification.
3) The 3 phases of soil : liquid, gaseous, solid.
4) Soil mineralogy and chemistry.
5) Soil organic matter and differentiation from soil microbial biomass.
6) Soil microbiology and microbial biomass.
7) Soil physics and physical parameters.
8) Soil-water relationships.
9) Soil functions and land use
10) Degradation of soil
11. Water use in Egypt and the world
12. Water quality and factors affecting water use
15. Water loss control
16. Water productivity in agriculture
17. Water pollution
18. Water scarcity

References:


Course: Biophysics (Code: SO 0502)

Description:
Developing knowledge and understanding on how physics lows and theories work in the biological sphere and community starting from the cell up to the organisms and the live community. Molecular, cellular, kinetic, enzymatic and related topics are involved. All of which help in comprehending and appreciating the variety in the living world, as well as managing and conserving our biological resources.

Course Contents:
1) Scope and development of Biophysics.
2) pH and buffering concepts.
3) Chemical bonds, ionic, covalent and others; hydrous and peptide bonds.
4) Colloidal state.
5) Separation and identification of materials.
6) Concept of chromatography (partition chromatography, paper Chromatography, adsorption Chromatography.
7) Ion exchange.
8) Electrophoresis. Centrifugation and sedimentation.
9) Crystal structure and X-Ray Crystallography and diffraction.
10) Theory of absorption of light by molecules

References:
2) **Gopalan, R. 2009.** Inorganic Chemistry For Undergraduates. Universities Press India. http://books.google.de/books?id=Fs4zQ-hNTz8C&printsec=frontcover&q=Inorganic+Chemistry+For+Undergraduates&hl=en&sa=X&ei=ggkBU5SIIB4HY4wTV5oBw&ved=0CDwQ6AEwAA#v=onepage&q=Inorganic%20Chemistry%20For%20Undergraduates&f=false

Course Name: **Bio-Organofertilization (Code: SO 0504)**
Prerequisite (AB0203 or SO0501)

Description:
The course intends to get the student aware of the importance and needs for making and utilizing organic materials in crop production. Different methods of preparing composts for plant nutrition. Mechanisms and organisms involved in the fermentation and composting are to be covered. Materials used for composting and their suitability are to be assessed. Reviewing the different techniques and methods of preparing composts needed for plant nutrition. Mechanisms and organisms involved in the fermentation and composting are to be covered. Materials used for composting and their suitability are to be assessed. Biofertilization and biofertilizers.

Course Contents:
1) Organic materials as providers of available plant nutrients.
2) Organic manures (e.g. farmyard manure, compost and sewage
3) Micro-organisms and biological agents used for enhancing soil fertility.
4) Compost production, chemical and biological processes, and quality.
5) Commercial compost production systems.
6) Compost effect on crop growth and yield.
7) Compost economics: production and utilization in agriculture.
8) Potential hazards, precautions, and regulations of compost production and utilization.
9) Nitrogen sources, mineralization rates, and nitrogen nutrition benefits to plants from composts.
10) Plant nutrition of P, K, Ca, Mg and micronutrients from compost.
11) Bacteria, fungi, and other organisms used for bio-fertilization.
12) Bio-fertilizers, their classification, production, use and modes of action.
13) Mechanisms and techniques of bio-fertilization.

References:
   http://books.google.de/books?id=mRv5okAZdnIC&printsec=frontcover&dq=Soil+fertility+evaluation+and+control&hl=en&sa=X&ei=1UL3Ur3gCMjZswbcwIDoAw&ved=0CC4Q6AEwAA#v=onepage&q=Soil%20fertility%20evaluation%20and%20control&f=false

   http://books.google.de/books?id=ZsxMJVX8YwwC&printsec=frontcover&dq=Organic+Farming:+Everything+You+Need+to+know&hl=en&sa=X&ei=tQkBU9e3Fo7n4QTbh4D4BQ&ved=0CC4Q6AEwAA#v=onepage&q=Organic%20Farming%3A%20Everything%20You%20Need%20to%20know&f=false

3) EIRI 2007. Handbook of Biofertilizers and Vermiculture. Engineers India Research Institute (EIRI), Delhi, India.
   http://books.google.de/books?id=fX6mAljE72oC&pg=PP4&dq=Handbook+of+Biofertilizers+and+Vermiculture.&hl=en&sa=X&ei=xgkBzrDrSlASeIDoCQ&ved=0CC4Q6AEwAA#v=onepage&q=Handbook%20Biofertilizers%20and%20Vermiculture.&f=false

Agribusiness
Course Name: Desert and saline land bio-reclamation (Code: SO 0506)

Prerequisite (SO 0501)

Description:
Acquainting students with knowledge and skills of reclamation of soils which are unsuitable for agriculture due to conditions needing reclamation, particularly desert sandy soils and salt-affected soils. The use of all means, including biological, for reclamation are covered. Behavior of plant nutrients in soils, soil conditioners and other topics are involved. Negative effects of salinity conditions and the biological response to media of high salinity are covered.

Course Contents:
1) Soils needing reclamation.
2) Desert sandy soils and their low fertility.
3) Salt-affected soils (saline, sodic and saline-sodic soils) and their hazards.
4) Calcareous soils (Ca-carbonate soils) and their hazards.
5) Water resources and water-quality for irrigation purposes.
6) Classification of crops in relation to salinity and sodicity hazards.
7) Crop selection for land reclamation stages.
8) Methods of land reclamation.
9) Rational management of reclaimed soils.
10) Early warning systems.

References:

17. Appendix 1. List of Courses of Agribusiness Program

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
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Optional Courses (Selective)

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The student registers all compulsory courses plus two optional courses of his/her choice in each semester.

Appendix 1. (Continued)

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Optional Courses (Selective)

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The student studies all compulsory courses plus two optional courses of his/her choice in each semester.

Department Codes: (Soils (SO)-Agric. Chemistry (AC)-Animal Production (AP)-Plant Protection (PP)-Agronomy (AG)- Horticulture (HO)-Agricultural Engineering (AE)-Economics (EE)-Food Science (FS)-Genetics (GE)-Agric. Botany (AB)
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The student studies all compulsory courses plus two optional courses of his/her choice in each semester.

Department Codes: [Soils (SO)-Agric. Chemistry (AC)-Animal Production (AP)-Plant Protection (PP)-Agronomy (AG)-Horticulture (HO)-Agricultural Engineering (AE)-Economics (EE)-Food Science (FS)-Genetics (GE)-Agric. Botany (AB)-]
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The student studies all compulsory courses plus two optional courses of his/her choice in each semester.

**Department Codes:** {Soils (SO)-Agric. Chemistry (AC)-Animal Production (AP)-Plant Protection (PP)-Agronomy (AG)-Horticulture (HO)-Agricultural Engineering (AE)-Economics (EE)-Food Science (FS)-Genetics (GE)-Agric. Botany (AB)
### Appendix 1. (Continued)

#### Level 3 Semester 1 Agribusiness Program

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<th>Unit</th>
<th>Theoretical</th>
<th>Practical</th>
<th>Pre-requisite</th>
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<tbody>
<tr>
<td>EE 0620</td>
<td>Macroeconomics</td>
<td>3</td>
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<td>2</td>
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<td>GE 1008</td>
<td>Plant Breeding</td>
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<td>AE 1105</td>
<td>Aqua culture Engineering</td>
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<tr>
<td>EE 0622</td>
<td>Agricultural policy and Regulations</td>
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<td>2</td>
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<td>EE 0602</td>
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</table>

The student studies all compulsory courses plus two optional courses of his/her choice in each semester.

**Department Codes:**  
(Soils (SO)-Agric. Chemistry (AC)-Animal Production (AP)-Plant Protection (PP)-Agronomy (AG)-Horticulture (HO)-Agricultural Engineering (AE)-Economics (EE)-Food Science (FS)-Genetics (GE)-Agric. Botany (AB)
Appendix 1. (Continued)

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Practical</th>
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<tr>
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<td>PP 0403</td>
<td>Economic Entomology</td>
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<tr>
<td>EE 0621</td>
<td>Extension Programs</td>
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<tr>
<td>FS 0725</td>
<td>Food Technology</td>
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<td>FS 0701</td>
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Optional Courses (Selective)

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<th>Unit</th>
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<th>Practical</th>
<th>Pre-requisite</th>
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</thead>
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<tr>
<td>EE 0625</td>
<td>Electronic Marketing Extension</td>
<td>3</td>
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<td>CJ 1203</td>
</tr>
<tr>
<td>AP 0304</td>
<td>Animal Production 4 (Fish)</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>GE 1001</td>
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<tr>
<td>HO 0210</td>
<td>Protected Vegetable Production</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>HO 0201</td>
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<td>Genetically Modified Food</td>
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<td>EE 0613</td>
<td>Economics of Animal Production</td>
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The student studies all compulsory courses plus two optional courses of his/her choice in each semester.

**Department Codes:** (Soils (SO)-Agric. Chemistry (AC)-Animal Production (AP)-Plant Protection (PP)-Agronomy (AG)-Horticulture (HO)-Agricultural Engineering (AE)-Economics (EE)-Food Science (FS)-Genetics (GE)-Agric. Botany (AB)-)
Appendix 1. (Continued)

Level 4 Semester 1 Agribusiness Program

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Unit</th>
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<th>Pre-requisite</th>
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<tbody>
<tr>
<td>EE 0623</td>
<td>Agricultural Marketing</td>
<td>3</td>
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<td>2</td>
<td>EE 0601</td>
</tr>
<tr>
<td>EE 0624</td>
<td>International Trade and Investment</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>EE 0618</td>
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<tr>
<td>AG 0103</td>
<td>Agronomy 3 (Crop Production)</td>
<td>3</td>
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<td>AG 0101</td>
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<tr>
<td>FS 0726</td>
<td>Dairy Technology</td>
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Optional Courses (Selective)

<table>
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<th>Unit</th>
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<th>Practical</th>
<th>Pre-requisite</th>
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<tr>
<td>AP 0307</td>
<td>Animal Genetic Improvement</td>
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<td>EE 0626</td>
<td>Economic Development</td>
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<td>EE 0618</td>
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<td>AB 0811</td>
<td>Post-harvest Diseases</td>
<td>3</td>
<td>2</td>
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<td>AB 0807</td>
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<tr>
<td>PP 0404</td>
<td>Integrated Pest Control</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>PP 0402</td>
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<tr>
<td>AG 0108</td>
<td>Forage Production &amp; Pasture Management</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>AG 0103</td>
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</table>

The student studies all compulsory courses plus two optional courses of his/her choice in each semester.

Department Codes: (Soils (SO)-Agric. Chemistry (AC)-Animal Production (AP)-Plant Protection (PP)-Agronomy (AG)-Horticulture (HO)-Agricultural Engineering (AE)-Economics (EE)-Food Science (FS)-Genetics (GE)-Agric. Botany (AB)-
## Level 4 Semester 2 Agribusiness Program

### Compulsory Courses (Obligatory)

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<th>Pre-requisite</th>
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<tbody>
<tr>
<td>EE 0627</td>
<td>Price Analysis</td>
<td>3</td>
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<td>EE 0623</td>
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<tr>
<td>EE 0605</td>
<td>Technology Transfer and Diffusion</td>
<td>3</td>
<td>2</td>
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<td>EE 0601</td>
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<tr>
<td>SO 0506</td>
<td>Desert and SalineLand Bio-reclamation</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>SO 0501</td>
</tr>
<tr>
<td>CJ 1208</td>
<td>Graduation Project</td>
<td>3</td>
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### Optional Courses (Selective)

<table>
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<tr>
<th>Course Code</th>
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<th>Unit</th>
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<th>Practical</th>
<th>Pre-requisite</th>
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<tr>
<td>EE 0628</td>
<td>Feasibility Studies &amp; Project Evaluation</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>EE 0623</td>
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<tr>
<td>EE 0629</td>
<td>Environmental Extension</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>EE 0621</td>
</tr>
<tr>
<td>EE 0630</td>
<td>Economics of Strategic Farm Products</td>
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<td>2</td>
<td>2</td>
<td>EE 0623</td>
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<tr>
<td>HO 0206</td>
<td>Horticulture 6 (Post-Harvest Technology)</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>HO 0201</td>
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<tr>
<td>PP 0411</td>
<td>Honey Bees and Products</td>
<td>3</td>
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<td>2</td>
<td>PP 0402</td>
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</table>

The student studies all compulsory courses plus two optional courses of his/her choice in each semester.

**Department Codes:** (Soils (SO)-Agric. Chemistry (AC)-Animal Production (AP)-Plant Protection (PP)-Agronomy (AG)-Horticulture (HO)-Agricultural Engineering (AE)-Economics (EE)-Food Science (FS)-Genetics (GE)-Agric. Botany (AB)-)
18. Appendix. 2.
2.1. Common and joint courses (CJ 12):

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<td>English 2</td>
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<tr>
<td>Computer Science</td>
<td>CJ 1203</td>
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<tr>
<td>Graduation Project</td>
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{Level/semester, Compulsory Courses ‘c’ or selective ‘s’}.

2.2. Courses given by the Agronomy Department (AG 01):

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<tbody>
<tr>
<td>Agronomy 1 (Fundamentals)</td>
<td>AG 0101</td>
<td>1/2 c</td>
</tr>
<tr>
<td>Agronomy 3 (Crop Production)</td>
<td>AG 0103</td>
<td>4/1 c</td>
</tr>
<tr>
<td>Crop Rotation &amp; Intensification</td>
<td>AG 0107</td>
<td>2/1 s</td>
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<tr>
<td>Forage Production &amp; Pasture management</td>
<td>AG 0108</td>
<td>4/2 s</td>
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</table>

{Level/semester, Compulsory Courses ‘c’ or selective ‘s’}.

2.3. Courses given by the Horticulture Department (HO 02):

<table>
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<tbody>
<tr>
<td>Horticulture 1 (Fundamentals)</td>
<td>HO 0201</td>
<td>1/1 c</td>
</tr>
<tr>
<td>Horticulture 6 (Post-harvest Technology)</td>
<td>HO 0206</td>
<td>4/2 s</td>
</tr>
<tr>
<td>Horticultural Crop Production</td>
<td>HO 0209</td>
<td>2/2 s</td>
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<tr>
<td>Protected Vegetable Production</td>
<td>HO 0210</td>
<td>3/2 s</td>
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{Level/semester, Compulsory Courses ‘c’ or selective ‘s’}.
2.4. Courses given by the Animal Production Department (AP 03):

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<tbody>
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<tr>
<td>Animal Production 2 (Dairy and Meat)</td>
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</tr>
<tr>
<td>Animal Production 3 (Poultry)</td>
<td>AP 0303</td>
<td>2/2 s</td>
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<td>Animal Production 4 (Fish)</td>
<td>AP 0304</td>
<td>3/1 c</td>
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{Level/semester, Compulsory Courses ‘c’ or selective ‘s’}.

2.5. Courses given by the Plant Protection Department (PP 04):

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<td>PP 0401</td>
<td>1/1 c</td>
</tr>
<tr>
<td>Entomology (General)</td>
<td>PP 0402</td>
<td>2/2 c</td>
</tr>
<tr>
<td>Economic Entomology</td>
<td>PP 0403</td>
<td>3/2 c</td>
</tr>
<tr>
<td>Integrated Pest Control</td>
<td>PP 0404</td>
<td>4/1 s</td>
</tr>
<tr>
<td>New Approaches in Pest-control</td>
<td>PP 0409</td>
<td>3/2 c</td>
</tr>
<tr>
<td>Honey Bees and Products</td>
<td>PP 0411</td>
<td>4/2 s</td>
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{Level/semester, Compulsory Courses ‘c’ or selective’s’}.

2.6. Courses given by the Soils Department (SO 05):

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<tr>
<td>Biophysics</td>
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<td>Soil Biotechnology</td>
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<tr>
<td>Bio-organo Fertilization</td>
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<tr>
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{Level/semester, Compulsory Courses ‘c’ or elective's’}
Courses given by the Agricultural Economics & Extension Department (EE 06):

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<tr>
<td>Agricultural Economics (Fundamentals)</td>
<td>EE 0602</td>
<td>2/2 c</td>
</tr>
<tr>
<td>Technology Transfer &amp; Diffusion</td>
<td>EE 0605</td>
<td>4/2 c</td>
</tr>
<tr>
<td>Production &amp; Consumption Economics</td>
<td>EE 0606</td>
<td>1/1 s</td>
</tr>
<tr>
<td>Social and Rural Society</td>
<td>EE 0607</td>
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<td>Economic Resources</td>
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<td>Extension Programs</td>
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<tr>
<td>Labour Economics</td>
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<td>2/1 s</td>
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<tr>
<td>Economics of Animal Production</td>
<td>EE 0613</td>
<td>2/2 s</td>
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<td>Economics &amp; Social Statistics</td>
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<td>Economics of water Resources</td>
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<td>Agricultural Finance</td>
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<td>Macro-Economics</td>
<td>EE 0620</td>
<td>3/2 c</td>
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<td>Planning of Extension Programs</td>
<td>EE 0621</td>
<td>3/2 c</td>
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<td>Agriculture Policy &amp; Regulations</td>
<td>EE 0622</td>
<td>3/2 s</td>
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<td>Agricultural Marketing</td>
<td>EE 0623</td>
<td>4/1 c</td>
</tr>
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<td>International Trade &amp; Investments</td>
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<td>4/1 c</td>
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<tr>
<td>Electronic Marketing Extension</td>
<td>EE 0625</td>
<td>4/1 s</td>
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<td>Economic Development</td>
<td>EE 0626</td>
<td>4/1 s</td>
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<tr>
<td>Price Analysis</td>
<td>EE 0627</td>
<td>4/2 s</td>
</tr>
<tr>
<td>Feasibility Studies &amp; Project evaluation</td>
<td>EE 0628</td>
<td>4/2 s</td>
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<tr>
<td>Environmental Extension</td>
<td>EE 0629</td>
<td>4/2 s</td>
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<tr>
<td>Economics of Strategic Farm Products</td>
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{Level/semester, Compulsory Courses ‘c’ or selective‘s’}.  

*Agribusiness*
2.8. Courses given by the Food Science Department (FS 07):

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<td>2/1 c</td>
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<tr>
<td>Food Technology</td>
<td>FS 0725</td>
<td>3/2 c</td>
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<tr>
<td>Dairy Technology</td>
<td>FS 0726</td>
<td>4/1 c</td>
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{Level/semester, Compulsory Courses ‘c’ or selective ‘s’}.

2.9. Courses given by the Agricultural Botany Department (AB 08):

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<td>Agricultural Microbiology</td>
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<td>Plant Physiology</td>
<td>AB 0806</td>
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<tr>
<td>Plant Pathology</td>
<td>AB 0807</td>
<td>3/1 c</td>
</tr>
<tr>
<td>Post-harvest disease</td>
<td>AB 0811</td>
<td>4/1 s</td>
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{Level/semester, Compulsory Courses ‘c’ or selective ‘s’}.

2.10. Courses given by the Agricultural Biochemistry Department (AC 09):

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<td>Chemistry 1 (Organic and inorganic)</td>
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<tr>
<td>Chemistry 2 (Biochemistry)</td>
<td>AC 0902</td>
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</table>

{Level/semester, Compulsory Courses ‘c’ or selective ‘s’}.

2.11. Courses given by the Genetics Department (GE 10):

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<td>GE 1001</td>
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<td>Genetically Modified Food</td>
<td>GE 1007</td>
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</tr>
<tr>
<td>Plant Breeding</td>
<td>GE 1008</td>
<td>3/1 s</td>
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{Level/semester, Compulsory Courses ‘c’ or selective ‘s’}. 
2.12. Courses given by the Agricultural Engineering Department (AE 11):

<table>
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<tbody>
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<tr>
<td>Biomathematics</td>
<td>AE 1102</td>
<td>1/2 c</td>
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<td>Bio-system Modeling and Simulation</td>
<td>AE 1103</td>
<td>1/2 s</td>
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<td>Aqua culture Engineering</td>
<td>AE 1105</td>
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<td>Farm Mechanization</td>
<td>AE 1108</td>
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<td>Farm Buildings</td>
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</tr>
<tr>
<td>Irrigation Systems</td>
<td>AE 1110</td>
<td>3/2 s</td>
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</tbody>
</table>

{Level/semester, Compulsory Courses ‘c’ or selective ‘s’}. 

*Agribusiness*
للائحة الداخلية لبرنامج "إدارة الأعمال الزراعية" برامج الساعات المعتمدة (برنامج كلية مشترك بين الأقسام العلمية) برنامج باللغة الإنجليزية المميز الخاص لطلاب مرحلة البكالوريوس

مايو 2013
Benha University
Faculty of Agriculture, Moshtohor

Prospectus for the Program of
AGRIBUSINESS
A Credit Hours Program
(Faculty Program)

English Distinguished Program
For BSc. Students

May 2013
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