#### Course Title: Chemistry 1 (Organic and Inorganic)

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| **University** | **Benha** |
| **Faculty** | **Agriculture** |
| **COURSE SPECIFICATIONS:** |
| Program of which the course is given | Agricultural Biotechnology Program |
| Major or Minor element of program | Major |
| Departments offering the program | Agricultural Chemistry  |
| Department offering the course | Agricultural Chemistry  |
| Academic year (level) | Level 1 (First Semester) |
| Date of specification approval |  |

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| **A- BASIC INFORMATION**  |
| Title  | Chemistry 1 (Organic and Inorganic) |
| Code | AC 0901  |
| Credit Hours  | 4 Hours/ week (14 week) |
| Lecture | 2 Hours / week |
| Practical | 2 Hours / week  |
| Total: | 56 Hours |

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| **B- PROFESSIONAL INFORMATION** |
| 1. OVERALL AIMS OF COURSE |
| * The course concerns the stereo-chemistry of aliphatic compounds, explain the organic reaction mechanisms, alicyclic, heterocyclic and aromaticty of organic compounds. Determining conformation and configuration of organic compounds and understanding electronic configuration and chemical bonds.
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| 2. INTENDED LEARNING OUTCOMES OF COURSE (ILOs) |
| **A. Knowledge and Understanding:** |
| ***By the end of the course, students should:**** Understand the stereo-chemistry of aliphatic compounds.
* Explain organic reaction mechanisms and the stereo-chemistry of the inorganic compounds as well.
* Review alicyclic, heterocyclic and aromaticty of organic compounds.
* Understand the formation and configuration of the chemical bonds in the organic and inorganic compounds.
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| B. Intellectual Skills: |
| ***Successful completion of this course will allow students to:**** Recognize and using appropriate theories, concepts and principles from a range of disciplines.
* Evaluate and integrating several lines an argument.
* Design an experiment to test a hypothesis.
* Evaluate and recording information or data in the library, laboratory or field and summarizing it using appropriate qualitative and /or quantitative techniques.
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| C. Professional and Practical Skills: |
| * Determine the conformation and configuration of the organic and inorganic compound.
* Determine the mechanism of the organic and inorganic reaction.
* Apply the organic chemistry in natural compounds and biochemical reaction.
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| D. General and Transferable Skills: |
| * Solve numerical problems with or without computer.
* Contribute constructively to group discussions.
* Listen to, appreciating and evaluating the views of other.
* Work in a team with positive intent.
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| 3. CONTENTS |
| **Topic** | **No. of hours** | **Lectures** | **Practical** |
| 1) Carbon atom and hybridization principals of reaction mechanisms. | 8 | 4 | 4 |
| 2) Classification of organic compounds (Alkanes, Alkenes, Alkynes, Alcohols, Ethers, Aldehydes, ketones, Organic acids and its derivatives) | 8 | 4 | 4 |
| 3) Electronic configuration of atoms. | 8 | 4 | 4 |
| 4) Chemical bonds between atoms. | 8 | 4 | 4 |
| 5) State of matter (gaseous, liquid and solid states). | 8 | 4 | 4 |
| 6) Electronic theory of valiancy. | 8 | 4 | 4 |
| 7) Lows of state of matter. | 8 | 4 | 4 |

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| 4. TEACHING AND LEARNING METHODS |
| 1. The main subject areas are covered in the lectures (see syllabus Plan).
2. Case study.
3. Cooperative groups.
4. Brain storming.
5. Learning cycle.
6. Students are given a topic to research in small groups which they report as an oral presentation. Collective feedback on the strengths and weaknesses of the presentations are provided.
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| 5. STUDENT ASSESSMENT METHODS |
| ***Students will be evaluated by attendance, fulfillment and effort in exercises and presentations, and examination grades:***1. Laboratory work: to assess the ability of students to understand and perform small laboratory experiments.
2. Assignments & students' Portfolio: to assess The Intellectual & General skills.
3. Mid-term exam: to assess The Knowledge & understanding.
4. Practical exam: to assess The professional skills.
5. Final exam to assess The Knowledge & understanding and Intellectual skills.
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| 6. ASSESSMENT SCHEDULE |
| No | AssessmentAssessment | **Week** |
| 1 | Periodical exam  | 7 |
| 2 | Practical exam | 11 |
| 3 | Oral exam | 13 |
| 4 | Final exam | 14 |

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| 7. WEIGHING OF ASSESSMENT |
| No | AssessmentAssessment | **%** |
| 1 | Periodical exam  | 15% |
| 2 | Practical exam | 15% |
| 3 | Oral exam | 10 % |
| 4 | Final exam | 60 % |
| TOTAL | 100 % |

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| 8. LIST OF REFERENCES |
| 1. **Gopalan, R., 2009**. Inorganic chemistry for undergraduates. Universities Press, India. [Link](http://books.google.de/books?id=Fs4zQ-hNTz8C&printsec=frontcover&dq=Inorganic+chemistry+for+undergraduates&hl=en&sa=X&ei=XvT3UvLXE4LbtAbu4oDoCA&ved=0CDcQ6AEwAA#v=onepage&q=Inorganic%20chemistry%20for%20undergraduates&f=false)

2)  **Harold H. Trimm, 2011.** Organic chemistry: Structure and mechanisms. Apple Academic press Inc. Canada. [Link](http://books.google.de/books?id=dsW3DvrfifIC&printsec=frontcover&dq=Organic+chemistry:+Structure+and+mechanisms&hl=en&sa=X&ei=f_T3Uuf3BIWNtQad7YD4BA&ved=0CC4Q6AEwAA#v=onepage&q=Organic%20chemistry%3A%20Structure%20and%20mechanisms&f=false.)3)  **James House, 2012.** Inorganic chemistry . 2nd Ed., Elsevier Inc. Oxford UK. [Link](http://books.google.de/books?id=dDrnzWoGQC8C&printsec=frontcover&dq=Inorganic+chemistry&hl=en&sa=X&ei=lfT3UpyZPIXcswbIq4CI%20Dg&ved=0CDwQ6AEwAQ#v=onepage&q=Inorganic%20chemistry&f=false)4) **John McMurry, 2012.** Organic chemistry 8th Edition. Cengage Learning China. [Link](http://books.google.de/books?id=kQgu2j_ber0C&printsec=frontcover&dq=or%20ganic+chemistry&hl=en&sa=X&ei=wfT3UqD4B4PPtQbS-%204DwCQ&ved=0CDwQ6AEwAA#v=onepage&q=organic%20chemistry&f=false) |

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| 9. FACILITIES REQUIRED FOR TEACHING AND LEARNING |
| 1. Teaching aids/materials: e.g. smart board-data-show projector – stationary.. etc.
2. Equipped lab.
3. Fine chemicals.
4. Teaching room/hall.
5. Computers.
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| **Course Coordinators:**  | **Prof. Dr.** **Prof. Dr.**  |
| **Date: / / 2015** |