LESSON PLAN (1-3)

1. Faculty / Study Program : FMIPA / Chemistry
2. Course & Code : Inorganic Chemistry I, KIM 109
3. Number of SCU (SCU (SKS) : Theory : 3 SCU (SKS), Practicum : –
4. Semester and Time : Sem :3/5 , Time : 3 x 150 minutes
5. Basic Competency :

   Describing the atomic structure: hydrogen atom spectrum, Bohr atomic theory, soft structure theory, Schrödinger wave equation, electronic configuration stability, orbital screening effect, and effective core charge. Element periodic system, element classification and chemical aspect of periodicity.

6. Indicator of achievement :

   Students are able to:

   1. explain definition of modern atomic theory.
   2. explain the Bohr atomic theory, its application and its disadvantage.
   3. describe the element periodic system, element classification and the chemical aspect of periodicity.

7. Main Topics / Segment of Subject :

   ATOMIC STRUCTURE:

   Hidrogen atom spectrum, Dalton atomic theory, Rutherford atomic Theory, Bohr atomic theory, soft structure theory, Heisenberg uncertainty, Schrödinger wave equation, electronic configuration stability, orbital screening effect, and effective core charge.

   PERIODIC ELEMENT SYSTEM:

   Periodic Element System, Element Classification and Periodicity properties

7. Activity in Class :

Componen - Stage	Description of Activity	Estimated Time	Method	Media	Source Material/reference
Introduction	Syllabus, Basic Competency, Indicator, Learning Contract	15 mins	Class Teaching	LCD, Power points	
Presenting (Main)	Atomic Structure: - Hidrogen atom spectrum Bohr atom theory, its application and disadvantage - Wavelength mechanics atom theory (atomic orbital symmetry *s,p,d,f*) - Core effective charge Periodic Element System: - Periodic Element System	130 mins 110 mins 40 mins 150 mins			**Textbook** Common Textbook Kimia Anorganik 1 (KH Sugiyarto) p. 1-36 p. 45-50

	- Element classification - Priodicity properties				
Conluding remarks					
Follow-up	Individual learning				

8. Evaluation: Exercises (p.43 and p.66)

Yogyakarta, 26 October 2013

Approval

Head of Department

Lecturer,

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NIP: 197707232003122001

LESSON PLAN (4-5)

1. Faculty / Study Program : FMIPA / Chemistry
2. Course & Code : Inorganic Chemistry I, KIM 109
3. Number of SCU (SKS) : Theory : 3 SCU (SKS), Practicum : –
4. Semester and Time : Sem :3/5 , Time : 2 x 150 minutes
5. Basic Competency :

   Describing definition of chemical bonding: the theory and the formation, Valence-hybridization bond, VSEPR theory

6. Indicator of achievement :

   Students are able to:

   1. explain the chemical bonding, the type of the bonding, bonding formation and chemical structure
   2. explain about covalent bonding, ionic bonding and its consequences
   3. identify the chemical bonding type of molecule
   4. explain the VSEPR theory and its application
   5. apply the type of chemical bonding to molecular system

7. Main Topics / Segment of Subject :

   MOLECULAR STRUCTURE

   Definition of chemical bonding, covalent bonding, ionic bonding, valence bond theory, hybridization, VSEPR theory

8. Activity in Class :

Componen - Stage	Description of Activity	Estimated Time	Method	Media	Source Material/reference
Introduction	Syllabus, Basic Competency, Indicator	5-10 mins	Class Teaching	LCD, Power points	
Presentation (main)	Definition, Chemical bonding, covalent bonding, ionic bonding, valence bond theory, hybridization concept, molecular symmetry VSEPR Theory	150 mins 150 mins		LCD, Power point	**Textbook** Common Textbook Kimia Anorganik 1 (KH Sugiyarto) p. 67-90
Concluding remark					
Follow-up	Individual learning				

9. Evaluation: Exercises (p.91)

Yogyakarta, 26 October 2012

Approval

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LESSON PLAN (6-8)

1. Faculty / Study Program : FMIPA / Chemistry
2. Course & Code : Inorganic Chemistry I, KIM 109
3. Number of SCU (SKS) : Theory : 3 SCU (SKS), Practicum : –
4. Semester and Time : Sem :3/5 , Time : 3 x 150 minutes
5. Basic Competency :

   Describing concept of acid-base: Bronsted-Lowry theory, binnary acid, oxy acid, other acid-base theory

6. Indicator of Achievement :

   Students are able to
   1. describe the concept of acid-base
   2. define the Bronsted-Lowry acid-base strengthness
   3. explain acid-base theory

ASAM BASA
4.1. Pendahuluan, Teori Asam Basa Bronsted - Lowry, Tetapan Keseimbangan Asam-Basa
4.2. Kekuatan Asam-Basa Bronsted - Lowry, Asam-asam Biner, Asam-asam Oksi
4.3. Asam-Basa dalam sisitem pelarut, Asam-Basa Lewis, Lux-Flood, Asam-basa Lunak-Keras, dan Superasam

7. Main Topics / Segment of Subject :

   Concept of acid-base: Bronsted-Lowry theory, binnary acid, oxy acid, Lewis acid-base, Lux-Flood acid-base, Hard-Soft Acid-Base, Superacid

8. Activity in Class :

Componen - Stage	Description of Activity	Estimated Time	Method	Media	Source Material/reference
Introduction	Syllabus, Basic Competency, Indicator	5-10 mins	Class Teaching	LCD, Power points	
Presentation (Main)	Acid Base Concept -Bronsted-Lowry Acid-Base, Acid-Base equlibrium constant -binnary acids, oxy acids Bronsted-Lowry base -Acid-base in Solvent System, Lewis Acid-base, Lux-Flood Acid-Base, Hard-Soft Acid-Base, Superacid	100 mins 100 mins 100 mins		LCD, Power point	**Textbook**: Common Textbook Kimia Anorganik I (K. H. Sugiyarto): p. 92-105
Concluding Remark					
Follow up	Individual Learning				

9. Evaluation: Exercise (p. 106)

Mid-semester Exam, 120 menit

Yogyakarta, 26 October 2013

Approval

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LESSON PLAN (9-10)

1. Faculty / Study Program : FMIPA / Chemistry
2. Course & Code : Inorganic Chemistry I, KIM 109
3. Number of SCU (SKS) : Theory : 3 SCU (SKS), Practicum : –
4. Semester and Time : Sem :3/5 , Time : 2 x 150 minutes
5. Basic Competency :

   Describing chemical reaction: non redox and redox reaction

6. Indicator of Achievement :

   Students are able to,
   1. describe about nonredox reaction
   2. explain redox reaction
   3. indentify chemical reaction

7. Main Topics / Segment of Subject :

   CHEMICAL REACTION: Nonredox and redox reaction

8. Activity in Class :

Componen - Stage	Description of Activity	Estimated Time	Method	Media	Source Material/reference
Introduction	Syllabus, Basic Competency, Indicator	5-10 mins	Class Teaching	LCD, Power points	
Presentation (Main)	Chemical Reaction: - nonredox reaction - redox reaction, lantiner diagram, Frost diagram	140 mins 150 mins		LCD, Power point	**Textbook**: Common Textbook Kimia Anorganik I (K. H. Sugiyarto): p. 107-135
Concluding Remarrk					
Follow up	Individual Learning				

9. Evaluation: Exercise (p. 136)

Yogyakarta, 26 October 2013

Approval

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LESSON PLAN (11)

1. Faculty / Study Program : FMIPA / Chemistry
2. Course & Code : Inorganic Chemistry I, KIM 109
3. Number of SCU (SKS) : Theory : 3 SCU (SKS), Practicum : –
4. Semester and Time : Sem :3/5 , Time : 1 x 150 minutes
5. Basic Competency :

   Describing Hydrogen: hydrogen isotope, chemical aspect, bonding on hydrogen, hydrogen properties

6. Indicator of Achievement :

   Students are able to :
   1. describe hydrogen properties
   2. explain hydrogen isotope, chemical aspect, bonding on hydrogen

7. Main Topics / Segment of Subject :

   HYDROGEN:

   Hydrogen isotope, chemical aspect, bonding on hydrogen, hydrate, hydrogen ion, dihydrogen preparation, hydrida, water and hydrogen bonding

8. Activity in Class:

Componen - Stage	Description of Activity	Estimated Time	Method	Media	Source Material/reference
Introduction	Syllabus, Basic Competency, Indicator	5-10 mins	Class Teaching	LCD, Power points	
Lessoning (Main)	Hydrogen: - Hydrogen isotope, chemical aspect, bonding on hydrogen, hydrate - hydrogen ion, dihydrogen preparation, hydrida, water and hydrogen bonding	70 mins 70 mins		LCD, Power point Skeletal Models	**Textbook**: Common Textbook Kimia Anorganik I (K. H. Sugiyarto): p. 138-152
Concluding Remark					
Follow up	Individual learning				

9. Evaluation: Exercise (p. 153)

Yogyakarta, 26 October 2013

Approval

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LESSON PLAN (12-13)

1. Faculty / Study Program : FMIPA / Chemistry
2. Course & Code : Inorganic Chemistry I, KIM 209
3. Number of SCU (SKS) : Theory : 3 SCU (SKS), Practicum : –
4. Semester and Time : Sem :3/5 , Time : 2 x 150 minutes
5. Basic Competency :

   Describing about properties and preference of boron, carbon and nitrogen

6. Indicator of Achievement :

   Students are able to:

   1. explain properties and preference of boron
   2. explain properties and preference of carbon
   3. explain properties and preference of nitrogen

7. Main Topics / Segment of Subject :

   BORON, CARBON, NITROGEN:

   Properties and preference, silicone and germanium, phosphor and arcent

8. Activity in Class :

Componen - Stage	Description of Activity	Estimated Time	Method	Media	Source Material/reference
Introduction	Syllabus, Basic Competency, Indicator	5-10 mins	Class Teaching	LCD, Power points	
Presentation (Main)	-BORON: properties and preferences -CARBON: properties and preferences, silicone and germanium -NITROGEN: properties and preference, phosphor and arcent	80 mins 100 mins 100 mins		LCD, Power point	**Textbook**: Common Textbook Kimia Anorganik I (K. H. Sugiyarto): p. 154-162 p. 164-188 p. 190-214
Concluding Remark					
Follow up	Individual learning				

9. Evaluation: Exercise (p. 163, p. 189, p. 208)

Yogyakarta, 26 October 2013

Approval

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LESSON PLAN (14-16)

1. Faculty / Study Program : FMIPA / Chemistry
2. Course & Code : Inorganic Chemistry I, KIM 209
3. Number of SCU (SKS) : Theory : 3 SCU (SKS), Practicum : –
4. Semester and Time : Sem :3/5 , Time : 3 x 150 minutes
5. Basic Competency :

   Describing about properties and preference of oxygen, halogen and noble gas

6. Indicator of Achievement :

   Students are able to:

   1. explain properties and preference of oxygen
   2. explain properties and preference of halogen
   3. explain properties and preference of noble gas

7. Main Topics / Segment of Subject :

   OXYGEN, HALOGEN, NOBLE GAS

   Properties and preference, oxygen anomaly, sulfur, flourine anomaly, flourine, chloride, halyde, halogen oxide, oxyhalogen acid and anion, interhalogen compound and polyhalyde ion, pseudohalogen, xenon flouride, xenon oxide.

8. Activity in Class :

Componen - Stage	Description of Activity	Estimated Time	Method	Media	Source Material/reference
Introduction	Syllabus, Basic Competency, Indicator	5-10 mins	Class Teaching	LCD, Power points	
Presentation (Main)	-OXYGEN: properties and preferences, oxygen anomaly, sulfur -HALOGEN: properties and preferences, flourine anomaly, flourine, chloride, halyde, halogen oxide, oxyhalogen acid and anion, interhalogen compound and polyhalyde ion, pseudohalogen -NOBLE GAS: properties and preference, xenon flouride, xenon oxide	80 mins 100 mins 120 mins		LCD, Power point	**Textbook**: Common Textbook Kimia Anorganik I (K. H. Sugiyarto): p. 216-232 p. 234-255 p. 257-262
Concluding Remark					
Follow up	Individual learning				

9. Evaluation: Exercise (p. 233, p. 256, p. 265)
   Final Examination 150 min

Yogyakarta, 26 October 2013

Approval

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