



Benha University
Faculty of Science



Nanomaterials Science and its Applications



Benha University
Faculty of Science



BSc. Nanomaterials Science and its Applications
Credited



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University Requirements					
University Compulsory Courses: 4 Credit Hours					
First level					
Course Code	Course Title	Theoretical	Practical	Credit Hours	Prerequisite
UR15	English Language (1)	1	—	1	—
UR30	Computer (1)	1	2	2	—
UR50	Human Rights and Combating Corruption	1	—	1	—
University Requirements					
University Elective Courses: 4 Credit Hours					
First level					
Course Code	Course Title	Theoretical	Practical	Credit Hours	Prerequisite
UR40	Computer (2)	1	2	2	30 UR
UR60	Writing and publishing scientific research	1	—	1	—
UR70	Climate change	1	—	1	—
Faculty Requirements					
Faculty Compulsory Courses: 28 Credit Hours					
First level					
Course Code	Course Title	Theoretical	Pract./ Exc.	Credit Hours	Prerequisite
Mat1101	General Math (1)	2	- /2	3	—
Mat1201	General Math (2)	2	- / 2	3	Mat 1101
Mat1202	Object-oriented programming	1	2 / -	2	Mat 1101
Phy1101	General Physics(1)	2	- / -	2	—
Phy1201	General Physics(2)	2	- / -	2	Phy 1101
Phy1102	Exp. Physics(1)	—	3/ -	1	—



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Phy1202	Exp. Physics(2)	—	3/-	1	Phy 1102
Chm1101	General Chemistry(1)	2	- / -	2	—
Chm 1201	General Chemistry(2)	2	- / -	2	Chm 1101
Chm 1102	Exp. Chemistry (1)	—	3/-	1	—
Chm 1202	Exp. Chemistry (1)	—	3 / -	1	Chm 1102
Chm 1103	Applied Chem(1)	—	-/2	1	—
Phy 1103	Applied Physics(1)	—	-/2	1	—
Chm 1203	Applied chem(2)	—	-/2	1	—
Phy 1203	Applied Physics(2)	—	-/2	1	Phy 1103
Zoo 1201	General Zoology (1)	1	2/-	2	—
Bot 1201	General Botany (1)	1	2/-	2	—

Faculty Requirements

Faculty Compulsory Courses: 62 Credit Hours

Course Code	Course Title	Theoretical	Pract./ Exc.	Credit Hours	Prerequisite
Chm 2101	An Introduction in Chemical Properties of Solid Materials	2	-/3	3	Chm 1103
Phy 2102	Thermodynamics	2	-/-	2	Phy 1201
Phy 2103	Materials Processing	2	-/-	2	Phy 1201
Chm 2104	Advanced Inorganic Chemistry	2	-/-	2	Chm 1103
Phy 2105	Introduction to Solid State Physics	2	-/3	3	Phy 1103
Chm 2106	An introduction to Nanomanufacturing and Materials Science	2	-/-	2	Chm 1103
Chm 2107	Chemical Kinetics	2	-/3	2	Chm 1103
Chm 2201	Materials Characterization	3	-/-	3	Chm 1103
Chm 2202	Heterocyclic compounds	1	-/3	2	Chm 1203

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Phy 2203	Defects in Materials	1	-/-	1	Phy 1103
Chm 3101	Corrosion science	1	-/3	2	Chm 2104
Chm 3102	Organic Materials and their Physical properties	1	-/3	2	Chm 1203
Phy 3103	Electronic and Magnetic Properties of solid Materials	2	-/-	2	Phy 1103
Chm 3104	Polymer Science	2	-/3	3	--
Chm 3105	Synthesis and Characterization of Nanomaterials	2	3/-	3	Chm 2106
Chm 3106	Surface Chemistry and Colloids	2	3/-	3	Chm 2107
Chm 3107	Molecular dynamics and Computational Chemistry	2	-/-	2	Chm 2106
Chm 3201	2-D Nanomaterials	2	-/-	2	Chm 2106
Chm 3202	Nano-biomaterials	2	-/-	2	Chm 2106
Chm 4101	Nanomaterials for solar Energy- Design and Processing	2	-/-	2	Chm 2106
Phy 4102	Photonic Materials & Devices	2	-/-	2	Phy 2105
Chm 4103	Effect of Temperature & Environment on	2	-/-	2	Chm 2101
	Properties of Nanomaterials and Their Behaviors		-/-		
Chm 4104	Photochemistry	2	-/-	2	Chm 3102
Phy 4105	Thin Films	2	-/-	2	Phy 2015
Chm 4106	Nanostructures for Sensors Applications	1	-/-	1	Chm 3105
Phy 4107	Renwable Energy	2	-/-	2	Phy 1103
Chm 4108	Nanotechnology and applications	2	-/3	3	Chm 3105



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Chem 4204	Micro/Nano Processing Technology	2	-/3	3	Chm 3105
Faculty Requirements					
Faculty Elective Courses: 26 Credit Hours					
Course Code	Course Title	Theoretical	Pract./ Exc.	Credit Hours	Prerequisite
Chm 2204	Advanced Analytical Chemistry	1	-/-	1	Chm 1103
Chm 2205	Properties of Ceramics and Glasses	2	-/-	2	Chm 1103
Chm 2206	Patents In Nanomaterials	2	-/-	2	Chm 1103
Chm 2207	Thermodynamics and Kinetics of Nanomaterials	2	-/-	2	Chm 1103
Chm 3203	Biochemistry	2	-/-	2	Chm 1203
Phy 3204	Phase Equilibria and Diffusion In Materials	1	-/-	1	Phy 1103
Phy 3205	Modern Physics	1	-/-	1	Phy 1203
Phy 3206	Physics of Polymers	1	-/-	1	Phy 1203
Chm 3207	Industrial Water and Wastewater Treatment using Nanomaterials	2	-/-	2	Chm 2106
Chm 3208	Modeling of Nano-Science Systems	2	-/-	2	Chm 2106
Chm 3209	Nanocatalysis	1	-/-	1	Chm 2103



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Chm 4205	Risk Assessment of Nanomaterials	2	-/-	2	Chm 2106
Phy 4206	Quantum Physics	2	-/-	2	Phy 2105
Chm 4201	Nanoemulsion	2	3/-	3	Chm 3106
Phy 4202	Nanoelectronics	1	3/-	2	Phy 4109
Faculty Elective Courses: 6 Credit Hours					
HRDT 2208	Human resource development and training	2	-/-	2	-----
Mat 2209	Mathematical Physics	2	-/-	2	Mat 1201
Nanomed 3210	Nanomedicine	2	-/-	2	Chm 2106
Entrp 3108	Entrepreneurship	2	-/-	2	-----
Ent 4203	Insect ecology	2		2	-----
Com 4204	Atomistic Computer Modelling for Materials	2		2	Mat 1202
Faculty Graduation requirements: 6 Credit Hours					
Applied and Field Training		--	--	3	--
Project		--	--	3	--