



Course Specifications

Course Title:	Astrophysics
Course Code:	2034220-3
Program:	Bachelor in Physics
Department:	Physics Department
College:	College of Science
Institution:	Taif University

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A. Course Identification

1. Credit hours: 3
2. Course type
a. University <input type="checkbox"/> College <input checked="" type="checkbox"/> Department <input type="checkbox"/> Others <input type="checkbox"/>
b. Required <input type="checkbox"/> Elective <input checked="" type="checkbox"/>
3. Level/year at which this course is offered: 12 th / 4 th year
4. Pre-requisites for this course (if any): None
5. Co-requisites for this course (if any): None

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	4	100%
2	Blended	0	0%
3	E-learning	0	0%
4	Distance learning	0	0%
5	Other	0	0%

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	40
2	Laboratory/Studio	0
3	Tutorial	0
4	Others (specify)	0
	Total	40

B. Course Objectives and Learning Outcomes

<p>1. Course Description</p> <p>Stars : magnitude – luminosity – introduction to spectra – stellar spectra – stellar parallax , stellar velocities – HR diagram – binary stars and stellar masses – star formation – series of stellar nuclear reaction and stellar ages- stellar evolution and structure</p>
<p>2. Course Main Objective</p> <ul style="list-style-type: none"> -Advance in some fundamental in Astronomy and Astrophysics -Radiation production in astronomical objects -Get familiarize with some basic concepts of Stellar physics -Applying physical laws and principles to interpret stars properties

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge and Understanding	
1.1	Define the basics of Stellar Astrophysics, stars structures and evolution, Stars life related events	K2
1.2	Advanced knowledge in Astrophysics life of stars	K2
2	Skills :	
2.1	Introducing Star formation theories	S3
2.2	Justify Stars properties in terms of physical concepts and laws	S3
3	Values:	
3.1	Show responsibility in working independently with continuous improvement of personal capacities.	V1

C. Course Content

No	List of Topics	Contact Hours
1	Stars : magnitudes – spectra – HR diagram	5
2	Stellar distances , parallax , stellar velocities and stellar masses	5
3	Star formation	4
4	Series of nuclear reactions	4
5	Stellar evolution	7
6	Introduction to stellar structure	2
7	Physics and chemistry of Planetary nebulae	5
8	Galaxies : types – physics	5
9	Final Review	3
Total		40

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge and Understanding		
1.1	Define the basics of Stellar Astrophysics, stars structures and evolution, Stars life related events	Lecture	Quizzes
1.2	Introducing Star formation theories	Lecture Group discussion	Written exam
2.0	Skills		
2.1	Advanced knowledge in Astrophysics life of stars	Lecture Group discussion	Written exam
2.2	Justify Stars properties in terms of physical concepts and laws	Lecture Group discussion	Written exam
3.0	Values		
3.1	Show responsibility in working independently with continuous improvement of personal capacities.	Group discussion	Essays

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Activities	continuous	10%
2	Midterm exam	6th	30%
3	Short exam	9th	10%
4	Final exam	12 th	50%

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

6 Hours per week during office- hours , in teacher staffroom or as per the arrangement made by the teacher

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	An introduction to modern Astrophysics Authors : Bradly Carroll and Dale Ostile , Addison Wesley Publisher : PeRSON ; 2 edition (July 28 , 2006)
Essential References Materials	Introduction to Astronomy (in Arabic) Authors : M.Nawawy , A.Kordi and H. Al – Trabulsy King Saud University Publisher , 2011
Electronic Materials	Astrophysics – Stars web sites of interest, provided by the instructor
Other Learning Materials	Multimedia materials accompanying the text books and the relevant websites

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Lecture room with max 80 seats Library
Technology Resources (AV, data show, Smart Board, software, etc.)	Data show , Smart Board , Software
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	New Telescope with higher facilities

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Student Feedback on Effectiveness of Teaching	Students	Indirect
Evaluation of Teaching	Peer reviewer Program coordinator Departmental council Faculty council	Indirect
Improvement of Teaching	Program coordinator Relevant committee	Direct
Quality of learning resources	Students Instructor Faculty	Indirect
Extent of achievement of course learning outcomes,	Program coordinator Instructor	Direct
Course effectiveness and planning for improvement	Program coordinator Instructor	Indirect

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	October 2, 2022