Course Specification

Institution: **University of Dammam**

College/Department: **College of Sciences – Girls Campus - Dammam**

A CourseIdentificationandGeneral Information

1. Course title and code. **Set Theory Math 172N**
2.Credithours: **1 lectures -2 Tutorials**
3. Program(s)in which the courseisoffered. (Ifgeneralelectiveavailableinmanyprogramsindicatethisratherthanlistprograms) **Bachelors in Mathematics**
4. If course is taught in more than one section indicate the section to which this report applies: **A specific team from the Mathematics Department**
5. Year and semester to which this report applies: **Semester 1 – Year 1434-1435.**
6.Level/year a twhich this courseisoffered: **2th level**
7.Pre-requisitesforthiscourse(ifany): **Therse is no co-requisite**
8. Location (if not on main campus): **College of Sciences – Girls Campus – Ryan City**

B Objectives

1. Summaryofthemainlearningoutcomesfor studentsenrolledinthecourse.
At the conclusion of this course, the student will be able to:
Know the basic concepts of sets.
Know the notions ofUnion, Intersection, DifferenceComplements and Power Sets.
Know the definition of subsets of cartesian product of sets and relations.
determine the different types of relations.
Know the definition of functions.
Discuss the different types of functions (One-one function ,Onto function , 1-1 Correspondence).
Understand infinte sets.
determine countable setsand cardinal number.

2. Brieflydescribeanyplansfordevelopingandimprovingthecoursethatarebeingimplemented.(eg increaseduseofIT orwebbasedreference material,changesincontentasa resultofnewresearchin thefield)
Continue to follow the latest books related to the course.
Add websites for the students in order to provide question models and self-tests as much as possible.
Convert the standard course to a digital one.
Update the contents of the course by a continual revision and comparison with similar courses in other universities.

C.CourseDescription(Note:Generaldescriptionintheformtobe used fortheBulletinor Handbookshouldbeattached)

1Topicstobe Covered		
ListofTopics	Noof Weeks	Contact hours
Introduction to Sets	1	3
Union , Intersection , Difference	2	6
Complements , Power Sets	1	3
Subsets	1	3
The Cartesians Product	1	3
Relations	2	6
Functions	2	6
One-one function ,Onto function , 1-1 Correspondence	1	3
Infinite Sets	1	3
Countable Sets	2	6
Cardinal Numbers	1	3

2 Coursecomponents(totalcontacthourspersemester):

Lecture: **3*15 hours**	Tutorial: ----------	Laboratory ----------	Practical/Field work/Interns	Other: office hours **2*15 hours**

3. Additionalprivatestudy/learninghoursexpectedfor studentsperweek.(Thisshouldbeanaverage :forthe semesternota specificrequirementineachweek)

36 hours/semester

4. DevelopmentofLearningOutcomesinDomainsofLearning

Foreachofthedomainsof learningshownbelowindicate:

Abriefsummaryoftheknowledgeor skillthecourseisintendedtodevelop;
Adescriptionoftheteachingstrategiestobe usedinthecoursetodevelopthatknowledgeor skill;
Themethodsofstudentassessmenttobe usedinthecoursetoevaluatelearningoutcomesin thedomainconcerned.

a.Knowledge

(i) Descriptionoftheknowledgetobeacquired

To recall basic concepts of Sets and the different ways to represent them.
To identify types of Sets which are most useful in applications such as power sets and cartisian product of sets.
To determine different kinds of relations and functions.
To apply 1-1 functions in defining countable sets.

(ii) Teachingstrategiesthat will be used to acquire theabove knowledge

Early preparation by reading the materials provided by the instructor in the Blackboard.
Group discussion.
Problem solving.
Discussion of the students presentation on one of the course subjects.

(iii) Assessment methodsofacquiredknowledge

Quizzes.
Homework.
Oral presentation and 3-5 page written report.

b.CognitiveSkills

(i) Descriptionofcognitiveskillstobeacquired

Remembering.
Analysis.
Predicting.
Innovation.

(i) Teachingstrategies that will be used to acquire the above cognitiveskills

Problem solving.
Group discussion.
Self-learning.

(ii) Assessment methodsofacquiredcognitiveskills

Challenging problems.
Quizzes.
Research projects.

c. InterpersonalSkillsandResponsibility

(i) Descriptionoftheinterpersonalskillsandthe ability to assumeresponsibilitytobedeveloped

The ability of solving more similar problems.
Organizing and presenting projects and homework neatly.
The ability to identify mistakes or inability to progress in homework.
The ability of using computers when presenting projects.
Demonstrating the sense of responsibility for learning by completing both reading and writing assignments in due time.
The act responsibly and ethically in carrying out individual as well as group projects.
Active participation in class discussion.

(ii) Teachingstrategiesthat willbe usedtoacquire the above skills

Teamwork.
Discussion.
Explanation.
Guidance and supervision of the group assignments for research projects.
Websites visits.
Self-studying.

assumeresponsibility

Observatio n.
Interview.
Assignmen ts. Self evaluation.
Oral examination of group projects.

d. Communication,InformationTechnologyandNumericalSkills
Discussion and dialog,problem-solving techniques.

(i) Descriptionoftheskillstobeacquired

Increase the ability to predict and conclude.
Increase the motivationto be innovative.
Ability to communicate in written and in oral.
Ability to explain each step in the problem solving process.
Ability to apply course concepts to mathematical problem solving model. Ability to use information technology in communication and research projects.

(ii) Teachingstrategiesthat willbe usedtoacquire the above skills **Team work through research projects.** **Discussion and dialog and oral** **presentations. Self-learning.**
(iii) Assessment methodsofacquirednumericalskills andcommunicationskills **Quizzes and Periodic written and oral** **tests. Homework** **collective\group projects.**
e.PsychomotorSkills(ifapplicable)
(i) Descriptionofthepsychomotorskillstobedevelopedandthelevelofperformancerequired **N/A**
(ii) Teachingstrategiestobe usedtodeveloptheseskills **N/A**

N/A

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D. Student Support

1.
Arrangementsforavailabilityofteachingstafforindividualstudentconsultationsandac
ademic advice.
(includeamountoftimeteachingstaffareexpectedtobeavailableeachweek)

Office hours : 2 hours/week

E Learning Resources

RequiredText(s) Briggs, W. L., Cochran, L., Gillett, B. and Schulz, E. P. n.d. Calculus for scientists and engineers.
2. EssentialReferences
4-.ElectronicMaterials,WebSitesetc **Listed in the black board of the course.**
5-Otherlearningmaterialsuchascomputer- basedprograms/CD,professionalstandards/regulations **Tex typesetting program and Sage software.**

F.Facilities Required

Indicaterequirementsforthecourseincludingsizeofclassroomsandlaboratories(ienumberof seat sin classroomsandlaboratories,extentofcomputeraccessetc.)
1.Accommodation(Lecturerooms,laboratories,etc.) **Lecture room with 20 seats.** **Smart class.**
2. Computingresources **Computer room with at least 10 systems** **Computer room with 20 seats**
3. Otherresources(specify-- eg.Ifspecificlaboratoryequipmentisrequired,listrequirementsorattach list) **N/A**

G CourseEvaluationandImprovementProcesses
1 StrategiesforObtainingStudentFeedbackonEffectivenessofTeaching
Course evaluation form. **Teachers-students periodical meeting.** **Student representation on faculty committees.** **Student group discussion.** **One to one student interviews.**
2 OtherStrategiesforEvaluationofTeachingbytheInstructororbytheDepartment
Faculty annual evaluation including teaching by the instructor and by the department. **Bulletin boards, e-mails, online survey.**
3ProcessesforImprovementofTeaching
Attendance of workshops in teaching methods and strategies. **Attendance of workshops in evaluation methods.** **Periodical revision of the course outcomes.**

ProcessesforVerifyingStandardsofStudentAchievement(e.g.checkmarkingbyanindependen t memberteachingstaffofa sampleofstudentwork,periodicexchangeandremarkingoftestsora sampleofassignmentswithstaffatanotherinstitution)

A Committee reviews samples of student work in this course to check on the standard of grades and achievements.

An external faculty member evaluates the course material and the students' work to compare the standard of grades and achievements with those at his university.

5Describetheplanningarrangementsforperiodicallyreviewingcourseeffectivenessandplanningfo

r improvement.

Self- assessment at every two years and the external assessment by the invited faculty member at every four years will be carried out.

The feedback received from these assessments will be used to plan for further improvements in the course.