Course Outcomes COs for U.G (2013)

Course Name: C201 Transforms and Partial Differentiation Equations

C201.1	Expand the periodic function as a general form and complex form of Fourier series. They can also find the Fourier series through harmonic analysis for discrete values of the function are given.
C201.2	Find the Fourier transform and inverse Fourier transform of the function. They can understand the concepts of convolution theorem and Parseval's identity on fourier transform. They can also evaluate the certain type of integrals using Fourier transform technique.
C201.3	Form the partial differential equations, find the solutions of first order partial differential equations and higher order linear partial differential equations with constant coefficients.
C201.4	Classify the partial differential equations. They can find the solutions to one dimensional wave equation, one dimensional and two dimensional heat conduction problems.
C201.5	Find the Z-transform of sequence and inverse Z-transform of function. They can form the difference equations and solving them using Z-transforms technique.

Course Name: C202 Stoichiometry

C202.1	Students will be able to learn, understand and apply the concept of basics physics, Maths and chemical engineering.
C202.2	Students will be able to learn, evaluate and implement balancing of mass and material in any industry.
C202.3	Students will be able to to learn, evaluate and implement the thermodynamic concepts.
C202.4	Students will be able to solve problems related to material and energy balance concepts & design reactors for biochemical processes.
C202.5	Students will be able to apply their knowledge in the field of biochemical engineering from the principles of thermodynamics.

Course Name: C203 Bioorganic Chemistry

C203.1	Students will understand the different bonding in molecules and also about various stereo chemical activities around the tetrahedral carbon.
C203.2	Students will understand the various mechanisms of addition and substitution reactions.
C203.3	Students will understand the kinetics and mechanism of various reactions and will be able to identify the rate order and predict the kinetics for a given reaction.
C203.4	Students will understand the basic concepts and different mechanisms of catalysis.
C203.5	Students will understand the importance of various bioorganic reactions and its applications.

Course Name: C204 Cell Biology

C204.1	Students will be able to Study of basic structure and division of cell in detail
C204.2	Students will be able to Understanding of transport of ions and molecules across cell membrane
C204.3	Students will be able to Study of cell signaling using protein receptors
C204.4	Students will be able to Study of cell signaling pathways in depth
C204.5	Students will be able to Tissue culturing techniques for future

Course Name: C205 Basic Industrial Biotechnology

C205.1	Students will be able to learn ,define and understand the basics in industrial bioprocess
C205.2	Students will be able to measure and manufacture the primary metabolites of

	commercial importance.
C205.3	Students will be able to measure, manufacture and formulate the secondary metabolites of commercial importance.
C205.4	Students will be able to isolate, identify, characterize and apply them in the production of enzymes and bioproducts.
C205.5	Students will be able to estimate, evaluate and express the production of therapeutic and diagnostic products.

Course Name: C206 Environmental Sciecne and Engineering

C206.1	Students will be able to understand, compare and estimate the resources such as land , water, food and mineral.
C206.2	Students will be able to locate and measure the connectivity between the energy flow in ecosystem and to estimate the value of bio diversity
C206.3	Students will be able to detect, estimate, measure and judge the different environmental pollution levels.
C206.4	Students will be able to identify, classify and formulate the solutions for social issues in the environment.
C206.5	Students will be able to investigate, evaluate and explain the cause and effects of population statistics.

Course Name: C207 Cell Biology lab

C207.1	Students will get the ideas about equipment like microscope and its usage
C207.2	Students will get knowledge on the importance and applications of staining.
C207.3	Students will be able to check the viability and effect of external solution on the cells.

Course Name: C208 Biorganic Chemistry Lab

C208.1	To have hands on experience on the synthesis of certain industrially important bio organic molecules
C208.2	To understand the possible bio-organic reactions involved in biosynthesis of bio organic molecules
C208.3	To characterize the various physical and chemical properties of the resulting bio organic molecule
C208.4	To validate and confirm the synthesized bio organic molecule by performing qualitative and quantitative tests
C208.5	To demonstrate the synthesis and applications of industrially important bio organic molecules

Course Name: C209 Probability and Statistics

C209.1	Understand the discrete and continuous variables and able to apply in different distributions. Understand testing techniques and apply in different distributions.
C209.2	Manage various problems arising during the analysis of variance.
C209.3	Testing of hypothesis for mean, variance, proportions using normal, t, chi-square and F-distributions.
C209.4	Analyze CRD and RBD using one way and two way classifications.
C209.5	Analyze the reliability of series and parallel systems using control charts.

Course Name: C210 Analytical Methods and Instrumentation

C210.1	Students would have a fundamental knowledge about the light spectrum and basics of measurement
C210.2	Students would have gained knowledge about working principle of optical methods
C210.3	Students would have developed knowledge about working principle of absorption and

	fluorescence spectroscopy
C210.4	After completing this course, students get knowledge about working principle of thermal methods used in biotechnology
C210.5	At the end of the course the student would acquire knowledge on different types of chromatographic methods for separation of biological products

Course Name: C211 Applied Thermodynamics for Biotechnologists

C211.1	To explain the theoretical concepts of thermodynamics and how it applies to energy conversion in technological applications and biological systems.
C211.2	To demonstrate the capability to analyze the energy conversion performance in a variety of modern applications in biological systems.
C211.3	To design and carry out bioprocess engineering experiments, and analyze and interpret fundamental data to do the design and operation of bioprocesses.
C211.4	To describe the criteria when two phases coexist in equilibrium and the vapour liquid equilibrium calculations microbial growth and product formation.
C211.5	Apply their knowledge in the field of biochemical engineering from the principles of thermodynamics.

Course Name: C212 Heat Transfer Operations

C212.1	The student will develop skills in learning units and dimensions and develop knowledge about mixing and agitation.
C212.2	The student will enhance his knowledge about separation processes and types of filtration and filters and its applications.
C212.3	The course shall educate the student about the mechanism and types of heat transfer.
C212.4	The course will enable the student to understand the transport process and flow over surfaces by convection.
C212.5	The course will develop skills in the application of heat exchangers for processes and in the area of unit operations.

Course Name: C213 Enzyme Technology and Biotransformation

C213.1	The knowledge on enzyme and enzyme reactions will be the key step in to proceed towards various concepts in biotechnology.
C213.2	The theoretical and practical aspects of kinetics will provide the importance and utility of enzyme kinetics towards research.
C213.3	The process of immobilization has been increased steadily in food, pharmaceutical and chemical industries and thus this study will provide simple and easy method of implementation.
C213.4	Ideas on Processing, Production and Purification of enzymes at an industrial scale will be helpful to work technologically.
C213.5	The course will develop understanding in the applications of enzymes – biotransformation processes.

Course Name: C214 Bioprocess Principles

C214.1	Students will be able to study about fermentor and its functioning.
C214.2	Students will gain knowledge on design of fermentation media components.
C214.3	Students will be able to Detailed study on sterilization kinetics.
C214.4	Students will be able to understand the concepts of microbial stoichiometry.
C214.5	Students will gain in depth knowledge on microbial growth kinetics.

Course Name: C215 Chemical Engineering Laboratory

C215.1	To understand the basics of chemical engineering principles and operations
C215.2	To be able to apply the skill of material balance and energy balance in unit operations unit process of chemical engineering and biotechnology

C215.3	To be able to analyze the principles of chemical engineering and its applications in chemical, mechanical and biological perspectives
C215.4	To understand the design and working principles of fluid moving machinery and transport phenomena
C215.5	To have a practical hands on experience in working with the unit operation equipments

Course Name: C216 Instrumental Methods of Analysis Laboratory

C216.1	Students would have a fundamental knowledge on the spectroscopic principle application in determination and validating a compound.
C216.2	Students would have gained knowledge about the use of the instrumental methods spectroscopy in biological sample analysis.
C216.3	Students would have developed knowledge about the chromatographic method principle and resolving a compound using it.

Course Name: C301 Protein Structure Function and Proteomics

C301.1	The students learned about the techniques involved in engineering a protein molecule.
C301.2	To educate the students about the structure and function of proteins and their particular importance.
C301.3	To demonstrate how to engineer a protein which is an essential aspect for a therapeutic recombinant protein production.
C301.4	To teach the students about modern techniques such a site-directed mutagenesis which important tool for medical analysis.
C301.5	To make the student to understand that it is important prerequisite for others electives like genomics & proteomics and Immuno technology.

Course Name: C302 Bioprocess Engineering

C302.1	Students would have a fundamental knowledge about the various organs involving in immune response and the types of antigen invading the immune system.
C302.2	Students would have developed knowledge about development, maturation, activation and regulation of T cells and B cell and also about the production and application of producing monoclonal antibodies.
C302.3	Students would have gained knowledge about the mechanism by which the body interacts with a pathogenic microorganisms and about the basic criteria for designing a vaccine. Students would have gained knowledge about the basis of hypersensitivity diseases and immunodeficiency diseases.
C302.4	After completing this course, students get familiar about the laws of transplantation and have gained the knowledge in tumor immunology
C302.5	At the end of the course the student would acquire knowledge on different aspects of immunology and about the autoimmune disorders.

Course Name: C303 Mass Transfer Operation

C303.1	To define the principles of adsorption, absorption, leaching and drying extraction, distillation, crystallization operations.
C303.2	To demonstrate about gas -liquid, vapour- liquid and solid- liquid and liquid–liquid equilibrium.
C303.3	To classify and use the accurate engineering correlations of diffusion and mass transfer coefficients to model a separation process.
C303.4	To investigate a multi-stage equilibrium separation processes, simultaneous phase equilibrium and mass balances in continuous separation processes absorbers, strippers and distillation columns and sizing continuous separation units.
C303.5	To design and construct with operating principles of process economics of separating equipments

Course Name: C304 Molecular Biology

C304.1	Students will be Familiarized with basics of transmission genetics and will understand that DNA is the genetic material
C304.2	Students will learn the structure of the material and will be able to analyses the molecular mechanism of replication in prokaryotes and eukaryotes
C304.3	Students will learn the importance of regulatory elements in the transcription of prokaryotes and eukaryotes emphasized more with fidelity of the process
C304.4	Students will be able to point out the genetic codon with exact aminoacid and work out the translation process at molecular level
C304.5	Students will be able to carry out project work with the knowledge in the gene regulation and mutation

Course Name: C305 Principles of Food Processing

C305.1	Students will gain proper idea about food chemistry and its applications.
C305.2	It demonstrates the importance of additives in food technology.
C305.3	Students will get a proper knowledge on food microbiology
C305.4	It elaborates the effect of food spoilage and food borne diseases.
C305.5	Apply their knowledge in the field food preservation.

Course Name: C306 Biopharmaceutical Technology

C306.1	Students would have a fundamental knowledge about the various phases and the regulatory aspects involved in the drug development.
C306.2	Students would have gained knowledge about mechanism of action of drug on a human body and how a body responds to a drug.
C306.3	Students would have developed knowledge about chemical reactions and processes involved in manufacturing a drug product.
C306.4	After completing this course, students get familiar about the preparation of various dosage forms of drug and its quality control.
C306.5	At the end of the course the student would acquire knowledge on different types of biopharmaceuticals.

Course Name: C307 Bioprocess Lab – I

C307.1	Students will be able explain about Enzyme kinetics and characterization and how to use them for practical applications.
C307.2	Students will be able to evaluate the growth kinetics of microorganisms and become adept with medium optimization techniques.
C307.3	Students will be able to determine an experimental objective, understand the theory behind the experiment, and operate the relevant equipment safely.

Course Name: C308 Molecular Biology Lab

C308.1	Students will be able to learn and understand the principle of DNA isolation from various sources.
C308.2	Students will be able to prepare and demonstrate the restriction enzyme digestion in rDNA technology.
C308.3	Students will be able to understand and detect the expression of transformed cells.

Course Name: C309 Total Quality Management for Biotechnologists

C309.1	Students will be able to understand and identify the importance of quality in the product and service.
C309.2	Students will be able to learn, understand and organize the basics of leadership quality , customer relationship and team work.
C309.3	Students will be able to learn, calculate and implement the tools and techniques I.
C309.4	Students will be able to learn and implement the cost of quality and to calculate the Taguchi loss functions..
C309.5	Students will be able to evaluate, estimate, judge and prepare the documents for ISO 9000 and 14000.

Course Name: C310 Immunology

C310.1	Students would have a fundamental knowledge about the various organs involving in immune response and the types of antigen invading the immune system.
C310.2	Students would have developed knowledge about development, maturation, activation and regulation of T ells and B cell and also about the production and
C310.3	Students would have gained knowledge about the mechanism by which the body interacts with a pathogenic microorganisms and about the basic criteria for
C310.4	After completing this course, students get familiar about the laws of transplantation and have gained the knowledge in tumor immunology
C310.5	At the end of the course the student would acquire knowledge on different aspects of immunology and about the autoimmune disorders.

Course Name: C311 Genetic Engineering and Genomics

C311.1	To teach the students about recombinant DNA techniques basic principles and equipments.
C311.2	To educate the students about recombinant DNA so that they can undertake research /project work in Modern Biology.
C311.3	To demonstrate and give hands on training in gene cloning experiments an essential aspect for recombinant protein production
C311.4	To teach the students about modern techniques such as blotting, sequencing and PCR which are the important tool for medical analysis.
C311.5	To make the student to understand that it is important prerequisite for electives like genomics & proteomics, Immuno technology and molecular biology.

Course Name: C312 Chemical Reaction Engineering

C312.1	To design and conduct an experimental investigation in order to determine rate equations.
C312.2	To demonstrate an ability to solve material and energy balances in order to analyze the performance of a reactor.
C312.3	To demonstrate an experimental data using standard statistical methods to establish quantitative results.
C312.4	To design a reactor for bio based products to achieve production and yield specifications.
C312.5	To provide a core foundation for the analysis and design of chemical reactors.

Course Name: C313 Animal Biotechnology

C313.1	Students will understand the nature of genome and its complicatedness and understand the usage of these genes.
C313.2	Students will have the ability to Understand the animal cell culture, animal diseases and its diagnosis.
C313.3	Students will be able to Gain the knowledge for therapy of animal infections

C313.4	Students will be able to Know the concepts of micromanipulation technology and transgenic animal technology.
C313.5	Students will Use the knowledge gained in this section to apply in the field of clinical research

Course Name: C314 Plant Biotechnology

C314.1	Students will understand the nature of plant genome and its complicatedness and understand the usage of these genes in crop improvement program.
C314.2	Students will have the ability to design organelles based gene transfer and role of different organelles in maintaining total energy balance of a plant.
C314.3	Students will be able to understand the role of nitrogen fixing mechanism in crop yield.
C314.4	Students will be able to select a suitable cloning vector for the production of genetically modified plants.
C314.5	Students will understand the importance various transgenic plants and its role in crop improvement and green revolution.

Course Name: C315 Genetic engineering Lab

C315.1	The students will experience hands on training related to all recombinant DNA techniques basic principles.
C315.2	To demonstrate the students about isolation, elution and handling of recombinant DNA and vectors.
C315.3	To demonstrate and give hands on training in gene cloning experiments an essential aspect for recombinant protein production
C315.4	To teach the students about blotting techniques which an important tool for medical analysis.
C315.5	To teach and give hands on experience to understand the importance of protein production & subsequent purification of protein

Course Name: C316 Bioprocess Lab – II

C316.1	Graduates gain ability to investigate, design and conduct experiments in bioprocess engineering.
C316.2	Graduates gain ability to analyze and interpret data, and apply the laboratory skills to solve complex bioprocess engineering problems.
C316.3	Graduates become creative, innovative and adaptable engineers as leaders or team members in their organizations and society.
C316.4	Graduates perform competently in chemical and bioprocess industries and become important contributors to national development.

Course Name: C317 Communication And Soft Skills

C317.1	Graduates gain ability listen and respond appropriately.
C317.2	Graduates gain ability participate in group discussions
C317.3	Graduates can Make effective presentations
C317.4	Graduates Participate confidently and appropriately in conversations both formal and informal.

Course Name: C401 Bioinformatics and Computational Biology

C402.1	Students will understand the different terms used in Bioinformatics and basics in Bioinformatics.
C401.2	Students will have the ability to retrieve biological data from various databases for their research work.
C401.3	Students will be able to analyse gene and protein sequences using different tools.
C401.4	Students will be able to identify distances between various species using phylogenetic analysis.

C401.5	Students will understand the gene expression patterns using micro array and other computational techniques.

Course Name: C402 Downstream processing

C402.1	Students understand the different unit operations involved in bioseparation and understand the various methods of cell disruption.
C402.2	Students gained the ability to design filtration and centrifugation operation for separation of biomass
C402.3	Students learned to identify a suitable unit operation for isolation and concentration for the given bioproduct
C402.4	Students learned be able to select a suitable chromatographic operation for purification of given bioproduct
C402.5	Students understand the importance of final polishing of bioproducts and their methods

Course Name: C403 Creativity, Innovation and New Product Development

C403.1	Students will understand the fundamentals of entrepreneurship and will be able to understand and analyze market.
C403.2	Students will be able to understand project selection and evaluation
C403.3	Students will be able to learn, understand new product development
C403.4	Students will be able to learn, understand, calculate and analyze new product planning
C403.5	Students will be able to define and apply the model preparation & evaluation

Course Name: C404 Bio Industrial Entrepreneurship

C404.1	Students will understand the fundamentals of Entrepreneurship and will be able to understand and analyze Market.
C404.2	Students will be able to plan and develop a Business plan.
C404.3	Students will be able to learn, understand setting up a business and also the basics of leadership quality, customer relationship and team work.
C404.4	Students will be able to learn, understand, calculate and analyze finance
C404.5	Students will be able to define and apply the ethical rights and also forecast and estimate the global issues.

Course Name: C405 Tissue Engineering

C405.1	Ability to understand the components of the tissue architecture
C405.2	Opportunity to get familiarized with the stem cell characteristics and their relevance in medicine
C405.3	Learned various techniques like evaporation, extraction, precipitation, membrane separation for concentrating biological products
C405.4	Awareness about the properties and broad applications of biomaterials
C405.5	Overall exposure to the role of tissue engineering and stem cell therapy in Organogenesis

Course Name: C406 Downstream processing Lab

C406.1	Acquired knowledge for the separation of whole cells and other insoluble ingredients from the culture broth.
C406.2	Learned cell disruption techniques to release intracellular products
C406.3	Learned various techniques like evaporation, extraction, precipitation, membrane separation for concentrating biological products
C406.4	Learned the basic principles and techniques of chromatography to purify the biological products
C406.5	Learned the methods of formulation of biological products for end uses

Course Name: C407 Immumology Lab

C407.1	The students will experience hands on training related to all immunotechniques used for medical analysis.
C407.2	To demonstrate the students about maintenance, handling of Laboratory animals, immunization and raising of antisera.
C407.3	To demonstrate and give hands on training in Elisa techniques, which is an important task for pathogenic analysis.
C407.4	To teach the students about blood grouping this is an important for blood transfusion.
C407.5	To teach and give hands on experience to understand the importance of identification of cells through staining, precipitation and immunoflouresence

Course Name: 408 Bioinformatics lab

C408.1	The students will Develop bioinformatics tools with programming skills.
C408.2	Students will be able to Apply computational based solutions for biological perspectives.
C408.3	Students will be able to Pursue higher education in this field and Practice life-long learning of applied biological science.

Course Name: C409 Project work

C409.1	Gives the basic theory and principle about the techniques used in the project.
C409.2	Students learn about the instrumental techniques adopted in their project work.
C409.3	Students will learn the basic start techniques and trouble shootouts in starting their projects.
C409.4	Students learn the interpretation details of the instrumental results obtained from the analysis
C409.5	Students would have learnt the idea how to go with a project work, time management in completing the project and result interpretation skills for thesis writing

CO-PO Mapping for UG – Regulation 2013

	POs												PSOs		
CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**	**PSO3**
C201.1	3	-	-	-	-	-	-	-	-	-	2	-	2	1	1
C201.2	3	-	-	-	-	-	-	-	-	-	2	-	2	1	2
C201.3	3	-	-	-	-	-	-	-	-	-	2	-	2	1	1
C201.4	3	-	-	-	-	-	-	-	-	-	3	-	1	1	1
C201.5	3	-	-	-	-	-	-	-	-	-	2	-	2	1	1
C202.1	2	3	2	2	1	-	-	-	-	-	-	-	3	1	-
C202.2	2	2	3	2	1	-	-	-	-	-	-	1	3	1	-
C202.3	2	2	3	2	1	-	-	-	-	-	-	1	1	3	1
C202.4	2	1	2	3	2	1	-	-	-	1	-	1	1	2	-
C202.5	2	1	3	2	1	-	-	-	-	1	-	1	1	1	3
C203.1	3	1	-	-	-	-	-	-	1	-	-	-	3	-	-
C203.2	3	-	1	2	-	-	-	-	-	-	-	-	-	-	-
C203.3	3	2	3	1	-	-	-	-	1	-	-	-	-	2	-
C204.1	1	1	2	-	-	-	-	-	1	-	-	-	-	2	-
C204.2	1	-	1	1	-	1	1	-	1	-	-	-	-	-	1
C204.3	1	-	2	1	2	-	-	-		-	-	-	1	2	1
C204.4	-	2		1	-	-	-	-	-	-	-	-	1	1	1
C204.5	-	-	2	1	-	-	-	-	-	-	-	-	1	2	1
C205.1	-	-	3	2	3	3	-	-	-	-	-	-	1	3	3
C205.2	1	2	2	3	2	3	2	-	-	-	-	-	2	3	3
C205.3	1	-	2	1	2	-	-	-	-	-	-	-	1	2	1
C205.4	-	2	-	1	-	-	-	-	-	-	-	-	1	1	1
C205.5	-	-	2	1	-	-	-	-	-	-	-	-	1	2	1
C206.1	-	-	3	2	3	3	-	-	-	-	-	-	1	3	3
C206.2	1	2	2	3	2	3	2	-	-	-	-	-	2	3	3
	1	1	2	1	-	2	3	-	-	-	-	2	3	1	1
	1	-	1	-	1	-	2	-	-	1	-	2	1	3	-

C206.3	2	1	2	1	-	1	2	-	2	-	-	2	1	3	-
C206.4	-	1	-	1	-	1	2	1		1	-	1	2	3	-
C206.5	-	-	-	-	1	2	2	1	1	1	-	1	1	1	3
C207.1	-	1	1	-	-	-	-	-	-	-	-	-	2	2	-
C207.2	1	2	1	2	-	2	-	-	-	-	-	-	3	3	1
C207.3	3	2	2	3	2	1	2	-	-	-	-	-	3	3	2
C208.1	3	1	-	-	-	-	-	-	1	-	-	-	3	-	-
C208.2	3	-	1	2	-	-	-	-	-	-	-	-	-	-	-
C208.3	3	2	3	1	-	-	-	-	1	-	-	-	-	2	-
C208.4	1	1	2	-	-	-	-	-	1	-	-	-	-	2	-
C208.5	1	-	1	1	-	1	1	-	1	-	-	-	-	-	1
C209.1	3	3	-	3	-	-	-	-	-	-	-	-	2	3	2
C209.2	3	3	-	3	-	-	-	-	-	-	-	-	2	2	3
C209.3	3	3	-	3	-	-	-	-	-	-	-	-	3	3	1
C209.4	3	3	-	3	-	-	-	-	-	-	-	-	3	2	3
C209.5	3	3	-	3	-	-	-	-	-	-	-	-	3	3	2
C210.1	3	-	-	-	-	-	-	-	-	-	-	-	3		
C210.2	2	1	-	-	-	-	-	-	-	-	-	-	3	2	
C210.3	1	-	3	2	1	-	1	-	-	-	-	2	3	2	
C210.4	1	-	3	2		-		-	-	-	-	-	3		2
C210.5	1	1	3	3	1	1	2	-	-	-	-	2	3		2
C211.1	2	1	-	-	-	-	-	-	-	-	-	-	1		
C211.2	1	2	2	2	1	-	-	-	-	-	-	-	1	2	
C211.3	1	2	3	2	1	-	-	-	-	-	-	-	2	1	
C211.4	1	1	3	2	2	-	-	-	-	-	-	-	2	2	
C211.5	1	2	2	3	3	2	-	-	-	-	-	1	1		3
C212.1	1	-	2	1	2	-	-	-	-	-	-	-	1	2	1
C212.2	-	2	-	1	-	-	-	-	-	-	-	-	1	1	1
C212.3	-	-	2	1	-	-	-	-	-	-	-	-	1	2	1
C212.4	-	-	3	2	3	3	-	-	-	-	-	-	1	3	3

C212.5	1	2	2	3	2	3	2	-	-	-	-	-	2	3	3
C213.1	1	1	1	2	2	-	-	-	-	-	-	1	2	2	3
C213.2	2	3	2	1	1	-	-	-	1	-	-	2	3	3	3
C213.3	2	3	3	3	2	2	1	-	-	-	-	2	3	3	3
C213.4	3	2	3	3	1	2	-	-	2	-	-	-	2	3	3
C213.5	2	2	2	2	2	1	-	-	-	-	-	2	2	2	3
C214.1	1	2	2	-	-	-	-	-	-	-	-	-	2	1	3
C214.2	1	2	1	2	-	-	-	-	-	-	-	-	2	2	2
C214.3	2	3	2	3	1	-	-	-	-	-	-	-	1	3	2
C214.4	2	2	2	3	2	2	-	-	-	-	-	-	2	-	2
C214.5	2	2	2	2	2	3	2	-	-	-	-	-	2	1	2
C215.1	3	1	-	1	2	2	-	-	-	-	-	3	2	-	-
C215.2	3	2	1	1	-	-	-	-	-	-	-	-	1	-	-
C215.3	2	2	-	1	2		-	-	-	-	-	3	2	2	-
C215.4	2	2	3	2	2	1	-	-	-	-	-	2	1	2	-
C215.5	2	1	2	2	3	2	-	-	-	-	-	3	2	-	1
C216.1	2	1	-	3	1	-	-	-	3	2	-	2	3	1	-
C216.2	2	1	-	3	1	-	-	-	3	2	-	2	2	2	1
C216.3	2	1	-	3	1	-	-	-	3	2	-	2	-	-	3
C301.1	2	-	1	-	3	-	-	2	-	-	-	-	1	2	3
C301.2	2	-	1	-	2	-	-	-	-	-	-	-	-	2	3
C301.3		1	2	-	3	1	2	-	-	-	-	-	-	1	3
C301.4	1	1	-	-	1	2		-	-	-	-	-	1	3	2
C301.5	1	-	3	2	-	-	1	2	-	-	-	-	1	2	3
C302.1	2	-	1	-	3	-	-	2	-	-	-	-	1	2	3
C302.2	2	3	1	-	2	-	-	-	-	-	-	-	1	2	3
C302.3	-	1	2	-	3	1	2	-	-	-	-	-	1	1	3
C302.4	1	1	-	-	1	2	-	-	-	-	-	-	1	3	2
C302.5	1	2	3	2	-	-	1	2	-	-	-	-	1	2	3
C303.1	3	2	3	2	1	-	-	-	-	-	2	-	1	1	1

C303.2	2	2	3	2	1	-	-	-	-	-	2	-	1	1	1
C303.3	3	2	3	2		-	-	-	-	-	-	-	1	1	2
C303.4	2	1	3	2	2	-	-	-	-	-	3	-	1		2
C303.5	3	2	2	3	1	-	-	-	-	-	2	-	-	1	1
C304.1	1	2	-	-	2	2	-	-	-	1	-	1	-	-	-
C304.2	2	1	3	2	2	-	1	-	-	2	-	1	-	-	-
C304.3	2	1	1	2	3	-	1	-	-	1	-	-	-	-	-
C304.4	1	2	2	2	2	-	1	-	-	-	-	-	-	-	-
C304.5	1	2	2	1	1	1	2	-	-	-	-	-	-	-	-
C305.1	2	-	1	-	3	-	-	2	-	-	-	-	1	2	3
C305.2	2	3	1	-	2	-	-	-	-	-	-	-	1	2	3
C305.3	-	1	2	-	3	1	2	-	-	-	-	-	1	1	3
C305.4	1	1		-	1	2			-	-	-	-	1	3	2
C305.5	1	2	3	2	-	-	1	2	-	-	-	-	1	2	3
C306.1	1	-	-	-	-	2	-	-	-	-	-	-	2	-	-
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C306.3	2	-	-	-	-	-	-	2	-	-	-	-	1	-	1
C306.4	1	-	-	-	-	-	-	1	-	-	-	-	2	-	3
C306.5	-	-	2	-	-	-	-	-	-	-	-	2	2	2	1
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C307.2	-	-	2	2	-	-	-	-	-	-	-	-	-	3	2
C307.3	-	-	2	3	-	-	-	-	-	-	-	-	-	3	2
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C316.1	1	-	-	-	-	2	-	3	-	-	1	2	-	2	-
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C409.4	1	-	-	-	-	-	-	1	-	-	-	-	2	-	3
C409.5	-	-	2	-	-	-	-	-	-	-	-	2	2	2	1