IK GUJRAL PUNJAB TECHNICAL UNIVERSITY, JALANDHAR
(Department of Academics)

Ref No. : IKGPTU/DA/2023/1801 **Dated: - 25.07.2023**

BRANCH CHANGE ORDERS

As approved, by the competent authority, following students are allowed to change their branch in 3rd Semester of B. Tech. Programme as mentioned against each: -

Sr. No.	Inst ID	Institute Name	University Roll No.	Student Name	Branch Before Upgradation	Branch After Upgradation
1.	26	CT Institute of Engineering Management & Technology, Shahpur, Jalandhar	2201615	Naveen Kumar	B.Tech. (Civil)	B.Tech. (CSE)
2.			2201790	Harpreet Singh	B.Tech. (ME)	B.Tech. (CSE)

Students opting upgradation/change of branch have to qualify the bridge courses as per Notification No. IKGPTU/Reg/NF/2101 dated 24.05.2019 (copy enclosed) within one year from the date of change of branch.

This order is issued with the approval of competent authority vide eOffice File I-25/37/2022-ACAD, Computer No. 66094 dated 24.07.2023.

Dr. Nitya Sharma 26/7/23
Dy. Controller (Academics)

A copy is forward to following for information:

1. Dean (Academics)
2. Controller of Examinations.
3. Principal/Director of concerned college/ Institute / Constituent Campuses.
4. Incharge I. T. Services for uploading on Noticeboard of University Website.

I. K. GUJRAL PUNJAB TECHNICAL UNIVERSITY

Estd. Under Punjab Technical University Act, 1996
(Punjab Act No. 1 of 1997)

Ref. No. : IKGPTU/Reg/NF/ 2101 *Dated :* 24.05.2019

NOTIFICATION

Sub: **Change / upgradation of branch in 3rd semester of B. Tech program.**

The student who opt for change/ updgration of branch in 3rd Semester of B. Tech w.e.f. admission session 2018-2019 onwards within College/Institute affiliated to IKGPTU, shall have to study the bridge course / additional subjects as per following guidelines:

A- For Mathematics

1. Two Bridge courses (Bridge course-I, II) have been formulated in Mathematics for change of branch. Bridge Course-I should be opted by the students shifting the branch within the departments of Mechanical Engineering, Civil Engineering, Electrical Engineering and Electronics & Communication Engineering and related branches. The list of related branches is enclosed at **Annexure-I**.
2. For shifting the branch from any of the above said departments to Computer Science and Engineering, the students should opt for Bridge Course-II.
3. The student shifting the branch from Computer Science Engineering to any of the above said branches of Mechanical Engineering, Civil Engineering, Electrical Engineering, Electronics and Communication Engineering students should opt Bridge Course-I.
4. Both the Bridge Courses should be audit/qualifying courses and no extra credit be awarded to students qualifying these courses.
5. These courses should be evaluated by the concerned teacher allocated to teach this course through internal evaluation. The evaluation of these courses should be done at college/departmental level as no extra credits are to be awarded to the students.

6. Concerned teacher should be given 2 hours load per week for teaching the bridge course.

7. No extra credit should be awarded to the student for qualifying the course.

8. The audit/qualifying course should have to be qualified by the students within one year of change of branch.

9. The institute shall issue a certificate that the student has passed additional / Bridge Course successfully.

10. Upon certification by teacher for qualifying the audit course/s (theory and practical), earlier issued result notification/s and DMCs of the concerned student shall be cancelled and the Examination Department of IKGPTU shall issue new result notification and DMCs as per upgraded curriculum with same number of credits.

B. For Physics:

1. In Physics no Bridge Course or Qualifying course is required if the students opt for shifting of branch within the following groups:

Group	Branch	Shifted to Branch & Vica-Versa
I	Computer Science	Electronics and Communication
II	Electrical Engineering	Chemical Sciences
III	Chemical Sciences	Biotechnology

2. If the student opts for shifting of branch outside the above mentioned groups, then he/she is required to qualify the complete course of physics (theory and practical) of previous semester of the opted branch.

3. No extra credit should be awarded to the student for qualifying the course.

4. These courses should be evaluated by the concerned teacher allocated to teach this course through internal evaluation. The evaluation of these courses should be done at college/departmental level as no extra credits are to be awarded to the students.

5. Concerned teacher should be given 2 hours load per week for teaching the bridge course.

6. The audit/qualifying course should have to be qualified by the students within one year of change of branch.

7. The institute shall issue a certificate that the student has passed additional / Bridge Course successfully.

8. Upon certification by teacher for qualifying the audit course/s (theory and practical), earlier issued result notification/s and DMCs of concerned student shall be cancelled and the Examination Department of IKGPTU shall issue new result notification and DMCs as per upgraded curriculum with same number of credits.

Encl: Total 04 pages

(Dr. S.S. Walia)
Registrar

Endst. No. IKGPTU/REG/NF/2102-2105 Dated: 24.05.2019

A copy is forwarded to the following officers for information please.

1. I/c Secretariat, O/o Vice Chancellor: For information of Vice Chancellor
2. All HoDs (Non-Teaching)
3. Director (Main Campus): To inform the all HoDs (Teaching) and Incharge, all Constituent Campuses
4. Director, IKGPTU Hoshiarpur Campus

(Dr. S. S. Walia)
Registrar

Sr. No.	Branch	Related Branches
1	Civil Engineering-	1. Civil Engineering
		2.Construction Engineering & Management
2	Electrical Engineering-	1.Electrical Engineering
		2.Automation & Robotics
		3.Electrical & Electronics Engineering
		4.Electronics & Electrical Engineering
		5.Electrical Engineering & Industrial Control
		6.Instrumentation & Control Engineering
3	Mechanical Engineering	1.Mechanical Engineering
		2.Marine Engineering
		3.Production Engineering
		4.Industrial Engineering
		5.Tool Engineering
		6.Automobile Engineering
		7.Aerospace Engineering
		8.Aeronautical Engineering
4	Computer Science Engineering	1.Computer Engineering
		2.Computer Science Engineering
		3.Information Technology
		4.3D Animation Engineering
5	Electronics and communication Engineering	1.Electronics & Communication Engineering
		2.Electronics & Computer Engineering
		3.Electronics & Instrumentation Engineering
		4.Electronics & Telecomm Engineering
		5.Electronics Engineering
6	Chemical Sciences	1.Chemical Engineering
		2.Petrochem & Petroleum Refinery Engineering
		3.Textile Engineering
		4.Food Technology
7	Bio-Technology-	Bio-Technology

Bridge Course-I

Subject Code: BTAMBC1-18

Section-A

Unit-I: Partial Differential Equations

Introduction to PDEs, Lagrange's Equation, Classification of PDEs, D' Alembert's solution of wave equations, heat equations and their solutions by variable separable method and Fourier series, Solution of boundary-value problems for various linear PDEs.

Unit-II: Numerical Methods

Solution of polynomial and transcendental equations – Bisection method, Regula-Falsi method, Newton-Raphson method, System of linear equations: Gauss elimination method, Gauss Seidel method, Numerical integration: Trapezoidal rule and Simpson's 1/3rd and 3/8 rules, Ordinary Differential equations: Euler and modified Euler's methods, Runge-Kutta method of fourth order for solving first order equations.

Section-B

Unit-III: Complex Variable – Differentiation

Elementary functions of complex variables, limit, continuity and differentiability, Cauchy-Riemann equations, analytic functions, harmonic functions, finding harmonic conjugate.

Unit-IV: Complex Variable – Integration

Contour integrals, Cauchy-Goursat theorem (without proof), Cauchy Integral formula (without proof), Liouville's theorem and Maximum-Modulus theorem (without proof), Taylor's series, zeros of analytic functions, singularities, Laurent's series, Residues, Cauchy Residue theorem (without proof), Evaluation of definite integral involving sine and cosine.

Text / References:

1. Sneddon, I.N., *Elements of Partial Differential Equation, 3rd Edition.* McGraw Hill Book Company, 1998.
2. Copson, E.T., *Partial Differential Equations, 2nd Edition.* Cambridge University Press, 1995.
3. Strauss, W.A., *Partial Differential Equations: An Introduction, 2nd Edition.* 2007.
4. Sharma, J.N., *Numerical Methods for Engineers and Scientists, 2nd Edition.* Narosa Publ. House New Delhi/Alpha Science International Ltd., Oxford UK, 2007, Reprint 2010.
5. Jain, M.K., Iyengar, S.R.K. and Jain, R.K., *Numerical Methods for Scientific and Engineering Computation, 5th Edition. New Age International Publ.* New Delhi, 2010
6. Ahlfors, L.V., *Complex Analysis, 2nd Edition.* McGraw-Hill International Student Edition, 1990.
7. Kumar, R.R., Complex Analysis, Pearson Education, 2015.
8. Churchill, R. and Brown, J.W., *Complex Variables and Applications, 6th Edition.* New-York: McGraw-Hill, 1996.

Bridge Course-II

Subject Code: BTAMBC2-18

Unit-I: Measures of Central tendency: Moments, skewness and kurtosis, Variance, Correlation coefficient, Probability, conditional probability, independence; Discrete random variables.

Unit-II: Continuous random variables, Probability distributions: Binomial, Poisson and Normal, Poisson approximation to the binomial distribution, evaluation of statistical parameters for these three distributions.

Unit-III: Correlation and regression for bivariate data, Rank correlation, Curve fitting by the method of least squares- fitting of straight lines, second degree parabolas and more general curves. Test of significance for small and large samples (z-test, t-test, F-test and Chi-square test).

Text / References:

1. Hoel, P. G., Port, S. C. and Stone, C. J., *Introduction to Probability Theory*, Universal Book Stall, 2003 (Reprint).
2. Ross, S., *A First Course in Probability, 6th Ed.*, Pearson Education India, 2002.
3. Feller, W., *An Introduction to Probability Theory and its Applications, Vol. 1, 3rd Ed.*, Wiley, 1968.
4. Bali, N.P. and Goyal, M., *A text book of Engineering Mathematics*, Laxmi Publications, Reprint, 2010.