List of New Course(s) Introduced

Department : Industrial and Production Engineering

Programme Name : B.Tech

Academic Year : 2022-23

List of New Course(s) Introduced

Sr. No.	Course Code	Name of the Course
01.	IP205TPC08	Design of Machine Elements
02.	IP205TPC09	Metal Cutting
03.	IP205TPC10	Statistical Quality Control
04.	IP205TPE1.	Professional Electives-01
05.	IP205TPE11	Industrial Engineering
06.	IP205TPE12	Work Study and Ergonomics
07.	IP205TPE13	Employee Relation
08.	IP205TPE2.	Professional Electives-02
09.	IP205TPE21	MEMS & Nanotechnology
10.	IP205TPE22	I. C. Engine
11.	IP205TPE23	Mechatronics
12.	IP205THS3.	Electives from Humanity Science-03
13.	IP205THS31	Financial Management
14.	IP205THS32	Managerial Economics
15.	IP205THS33	Financial Accounting and Costing
16.	IP205PPC05	Metal Cutting Lab
17.	IP205PSC01	Seminar
18.	IP206TPC11	Operation Research
19.	IP206TPC12	Metrology & Measurement
20.	IP206TPC13	Welding Engineering
21.	IP206TPE3.	Professional Elective-03
22.	IP206TPE31	Material Management
23.	IP206TPE32	Plant Layout& Material Handling
24.	IP206TPE33	Maintenance & Reliability Engineering
25.	IP206TPE4.	Professional Electives-04
26.	IP206TPE41	Automobile Engineering
27.	IP206TPE42	Power Plant Engineering
28.	IP206TPE43	Heat & Mass Transfer
29.	IP206TOE1.	Open Elective-01

New Course Introduced

30.	IP206TOE11	Enterprise Resource Planning
31.	IP206TOE12	Management Information System
32.	IP206TOE13	Six Sigma and DOE
33.	IP206PPC06	Metrology & Measurement Lab
34.	IP206PPC07	Welding Engineering Lab
35.	IP207TPC14	Computer Aided Design & Manufacturing
36.	IP207TPE05	Production Planning and Control
37.	IP207TPE6.	Professional Elective-05
38.	IP207TPE61	Fundamentals of Green Manufacturing
39.	IP207TPE62	Product Design & Development
40.	IP207TPE63	Engineering Economics
41.	IP207TOE2.	Open Elective-02
42.	IP207TOE21	Computer Aided Process Planning (CAPP)
43.	IP207TOE22	Principles of Management
44.	IP207TOE23	Maintenance Management
45.	IP207TOE3.	Open Elective-03
46.	IP207TOE31	Advanced Manufacturing Processes
47.	IP207TOE32	Turbo Machinery
48.	IP207TOE33	Strategic Management
49.	IP207PPC08	CAD/CAM Lab
50.	IP207PSC02	Seminar on Summer Training
51.	IP207PPR01	Minor Project
52.	IP208TPC15	Robotics and Robot Applications
53.	IP208THS4.	Electives from Humanity Science-04
54.	IP208THS41	Intellectual Property Rights
55.	IP208THS42	Safety Management and Labour Law
56.	IP208TOE4.	Open Elective-04
57.	IP208TOE41	Product Design and Manufacturing
58.	IP208TOE42	Microprocessors in Automation
59.	IP208TOE5.	Open Elective-05
60.	IP208TOE51	Supply Chain Management
61.	IP208TOE52	Composite Materials Technology
62.	IP208TOE53	Finite Element Method
63.	AMUATB1	Engineering Mathematics - A
64.	CYUATB3	Engineering Chemistry
65.	ECUATE4	Basic Electrical and Electronics Engineering
66.	FOUATC2	Environmental Science and Ecology

New Course Introduced

67.	CSUATE5	Computer Programming
68.	LAUATC1	Indian Constitution
69.	CYUALB3	Engineering Chemistry Laboratory
70.	CSUALE5	Computer Programming Laboratory
71.	IPUALL2	Engineering Workshop Practices
72.	PEUALS2	Sports and Yoga
73.	AMUBTB4	Engineering Mathematics-B
74.	PPUBTB2	Engineering Physics
75.	ITUBTE2	Introduction to Information Technology
76.	ELUBTH1	English for Communication
77.	CEUBTE1	Engineering Mechanics
78.	IP UBTH2	Human Values and Ethics
79.	PPUBLB2	Engineering Physics Laboratory
80.	CEUBLE1	Engineering Mechanics Laboratory
81.	MEUBLL1	Engineering Graphics
82.	NSUBLS1	NSS

Department : *Industrial and Production Engineering*

Date and Time : *Jan. 17, 2022 5:00 PM*

Venue : *Cad Lab*

The scheduled meeting of member of Board of Studies (BoS) of Department of Industrial and Production Engineering, School of Studies of Engineering and Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur was held on 17.06.2022 at 5:00PM in Cad Lab.

The following members were present in the meeting:

1. *Prof. S.C. Shrivastava (HOD, Professor., Dept. of I.P.E., -cum Chairman, BOS)*
2. *Prof. M.K. Singh (Member BoS, Professor, Dept. of I.P.E)*
3. *Mr. C.P. Dewangan, (Member BoS, Associate Prof., Dept. of I.P.E)*
4. *Mr. Nitin Kumar Sahu, (Member BoS, Assistant Prof., Dept. of I.P.E)*
5. *Mr. Kawal Lal Kurrey (Invited Member BoS, Assistant Prof., Dept. of I.P.E)*

   Following External members has also participated by email as the coding, scheme and syllabus of B. Tech V, VI, VII & VIII Semester M.Tech (CAD-CAM and Robotics) and PrePh.D Course work by email. Dr. A. R. Dixit (External Expert, Professor, Mechanical Engineering Department, Indian Institute of Technology ISM, Dhanbad)
6. *Mr. Bhanja Prasad Patro (External Expert, Director & Head, CIPET: CSTS - Bhubaneswar)*

Following points were discussed during the meeting

1. *Coding, scheme, syllabus of B. Tech. V, VI, VII VIII Semester (Industrial &Production Engineering), M.Tech (CAD-CAM and Robotics) and Pre-Ph.D Course work was discussed in detail and incorporated. The verbal suggestions received from the external experts are also incorporated and recommended for approval.*
2. *The discussion regarding the honorarium payment for the external experts sitting is also decided and will be paid as per rule from the imprest fund.*
3. *The coding, scheme, syllabus of B. Tech. V, VI, VII VIII Semester, M.Tech (CAD-CAM and Robotics) and Pre-Ph.D Course work of Department of Industrial & Production Engineering have been accepted by the B.O.S. (I.P.E.) and attached herewith for approval from the competent authority.*

   The B.O.S. meeting was concluded with vote of thanks by Head of the Department

The committee discussed and approved the scheme and syllabi. The following courses were revised in the B. Tech. Third year (VI Semester) :

- Computer Aided Design & Manufacturing (IP07TPC14)

New Course Introduced

- Robotics and Robot Applications (IP08TPC16)
- *Research Methodology in Engineering (IPDATT1)*
- *Computer Aided Design (IPDATK1)*

The following new courses were introduced in the of B. Tech. Second and Third year (V, VI, VII VIII Semester):

- *Design of Machine Elements (IP205TPC08)*
- *Metal Cutting(IP205TPC09)*
- *Statistical Quality Control (IP205TPC10)*
- *Professional Electives-01 (IP205TPE1.)*
- *Industrial Engineering (IP205TPE11)*
- *Work Study and Ergonomics (IP205TPE12)*
- *Employee Relation (IP205TPE13)*
- *Professional Electives-02 (IP205TPE2.)*
- *MEMS & Nanotechnology (IP205TPE21)*
- *I. C. Engine (IP205TPE22)*
- *Mechatronics (IP205TPE23)*
- *Electives from Humanity Science-03 (IP205THS3.)*
- *Financial Management (IP205THS31)*
- *Managerial Economics (IP205THS32)*
- *Financial Accounting and Costing (IP205THS33)*
- *Metal Cutting Lab (IP205PPC05)*
- *Seminar (IP205PSC01)*
- *Operation Research (IP206TPC11)*
- *Metrology & Measurement (IP206TPC12)*
- *Welding Engineering (IP206TPC13)*
- *Professional Elective-03 (IP206TPE3.)*
- *Material Management (IP206TPE31)*
- *Plant Layout& Material Handling (IP206TPE32)*
- *Maintenance & Reliability Engineering (IP206TPE33*
- *Professional Electives-04 (IP206TPE4.)*
- *Automobile Engineering (IP206TPE41)*
- *Power Plant Engineering (IP206TPE42)*
- *Heat & Mass Transfer (IP206TPE43)*
- *Open Elective-01 (IP206TOE1.)*
- *Enterprise Resource Planning (IP206TOE11)*
- *Management Information System (IP206TOE12)*
- *Six Sigma and DOE (IP206TOE13)*
- *Metrology & Measurement Lab (IP206PPC06)*
- *Welding Engineering Lab (IP206PPC07)*
- *Computer Aided Design & Manufacturing (IP207TPC14)*
- *Production Planning and Control (IP207TPE05)*
- *Professional Elective-05 (IP207TPE6.)*
- *Fundamentals of Green Manufacturing (IP207TPE61)*
- *Product Design & Development (IP207TPE62)*
- *Engineering Economics (IP207TPE63)*

- *Open Elective-02 (IP207TOE2.)*
- *Computer Aided Process Planning (CAPP) (IP207TOE21)*
- *Principles of Management (IP207TOE22)*
- *Maintenance Management (IP207TOE23)*
- *Open Elective-03 (IP207TOE3.)*
- *Advanced Manufacturing Processes (IP207TOE31)*
- *Turbo Machinery (IP207TOE32)*
- *Strategic Management (IP207TOE33)*
- *CAD/CAM Lab (IP207PPC08)*
- *Seminar on Summer Training (IP207PSC02)*
- *Minor Project (IP207PPR01)*
- *Robotics and Robot Applications (IP208TPC15)*
- *Electives from Humanity Science-04 (IP208THS4.)*
- *Intellectual Property Rights (IP208THS41)*
- *Safety Management and Labour Law (IP208THS42)*
- *Open Elective-04 (IP208TOE4.)*
- *Product Design and Manufacturing (IP208TOE41)*
- *Microprocessors in Automation (IP208TOE42)*
- *Open Elective-05 (IP208TOE5.)*
- *Supply Chain Management (IP208TOE51)*
- *Composite Materials Technology (IP208TOE52)*
- *Finite Element Method (IP208TOE53)*
- *Engineering Mathematics – A (AMUATB1)*
- *Engineering Chemistry (CYUATB3)*
- *Basic Electrical and Electronics Engineering (ECUATE4)*
- *Environmental Science and Ecology (FOUATC2)*
- *Computer Programming (CSUATE5)*
- *Indian Constitution (LAUATC1)*
- *Engineering Chemistry Laboratory (CYUALB3)*
- *Computer Programming Laboratory (CSUALE5)*
- *Engineering Workshop Practices (IPUALL2)*
- *Sports and Yoga (PEUALS2)*
- *Engineering Mathematics-B (AMUBTB4)*
- *Engineering Physics (PPUBTB2)*
- *Introduction to Information Technology (ITUBTE2)*
- *English for Communication (ELUBTH1)*
- *Engineering Mechanics (CEUBTE1)*
- *Human Values and Ethics (IPUBTH2)*
- *Engineering Physics Laboratory (PPUBLB2)*
- *Engineering Mechanics Laboratory (CEUBLE1)*
- *Engineering Graphics (MEUBLL1)*
- *NSS (NSUBLS1)*

The B.O.S. meeting was concluded with vote of thanks by Head of the Department.

New Course Introduced

Signature & Seal of HoD

New Course Introduced

School : *School of Studies of Engineering and Technology*

Department : *Industrial and Production Engineering*

Date and Time : *Dec. 15, 2022*

Venue : *Online mode*

The scheduled meeting of member of Board of Studies (BoS) of Department of Industrial and Production Engineering, School of Studies of Engineering and Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur was held held on 15.12.2022 in online mode.

The following members were present in the meeting:

7. *Prof. S.C. Shrivastava (HOD, Professor., Dept. of I.P.E., -cum Chairman, BOS)*
8. *Prof. M.K. Singh (Member BoS, Professor, Dept. of I.P.E)*
9. *Mr. C.P. Dewangan, (Member BoS, Associate Prof., Dept. of I.P.E)*
10. *Mr. Nitin Kumar Sahu, (Member BoS, Assistant Prof., Dept. of I.P.E)*
11. *Dr. Atul Kumar Sahu (Invited Member BoS, Assistant Prof., Dept. of I.P.E)*
12. *Dr. Ganesh Prasad Shukla (Invited Member BoS, Assistant Prof., Dept. of I.P.E)*

    Following External members has also participated by email as the coding, scheme and syllabus of B. Tech I, II & VI Semester (Industrial & Production Engineering) is shared with the external experts earlier by email for their kind glancing.
13. *Dr. A. R. Dixit (External Expert, Professor, Mechanical Engineering Department, Indian Institute of Technology ISM, Dhanbad)*
14. *Mr. Bhanja Prasad Patro (External Expert, Director & Head, CIPET: CSTS - Bhubaneswar)*

    The BOS meeting is conducted in online platform via Google meet link (https://meet.google.com/qrz-qmbd-gpq) for the following agenda.

Following points were discussed during the meeting

1. To approve the common syllabus and scheme of B.Tech first and second semester towards NEP-2020 for the IPE branches for the session 2022-23

2. The scheme of VI semester IPE is required to be updated and accordingly new updated scheme of VI semester IPE is discussed with the BOS members.

All the members of BOS has approved the syllabus and scheme of B.Tech first and second semester and scheme of VI semester IPE, where Mr. Bhanja Prasad Patro (External Expert- email: bppatra66@gmail.com) and Dr. A. R. Dixit (External Expert, email: amitraidixit@iitism.ac.in) has given approval via replying to the sent invitation mail.

The discussion regarding the honorarium payment for the external experts sitting is also decided and will be paid as per rule from the imprest fund.

The coding, scheme, syllabus of B. Tech. I, II and VI Semester of Department of Industrial & Production Engineering have been accepted by the B.O.S. (I.P.E.) and attached herewith for approval from the competent authority.

The B.O.S. meeting was concluded with vote of thanks by Head of the Department

The committee discussed and approved the scheme and syllabi. The following courses were revised in the B. Tech. Third year (VI Semester) :

- Computer Aided Design & Manufacturing (IP07TPC14)
- Robotics and Robot Applications (IP08TPC16)
- *Research Methodology in Engineering (IPDATT1)*
- *Computer Aided Design (IPDATK1)*

The following new courses were introduced in the of B. Tech. First year (I and II Semesters):

- *Environmental Sciences (IP207TMC02)*
- *Manufacturing Processes (IP207TOE02)*

The B.O.S. meeting was concluded with vote of thanks by Head of the Department.

Signature & Seal of HoD

Scheme and Syllabus

SCHOOL OF STUDIES OF ENGINEERING & TECHNOLOGY
GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)
(A Central University Established by the Central University Ordinance 2009, No. 3 of 2009)

SCHEME FOR EXAMINATION (Effective from Session 2021-22)

B.TECH.-(FOUR YEAR) DEGREE COURSE, CHEMICAL ENGINEERING

FINAL YEAR, SEVENTH SEMESTER (AICTE) (CBCS)

S. No.	Subject Code	Subject Name	Periods			Evaluation Scheme			Credits
						Sessional			
	THEORY		L	T	P	IA	ESE	TOTAL	
01.	CH07TPC14	Process Equipment Design - II	3	1	0	30	70	100	4
02.	CH07TPC15	Chemical Reaction Engineering - II	3	1	0	30	70	100	4
03.	CH07TPC16	Transport Phenomena	3	1	0	30	70	100	4
04.	CH07TPE4X		3	0	0	30	70	100	3
05.	CH07TOE3X		3	0	0	30	70	100	3
	PRACTICAL								
01.	CH07PPC11	Minor Project	0	0	3	30	20	50	1.5
02.	CH07PPC12	Seminar	0	0	3	30	20	50	1.5
		Total	15	3	6			600	21

IA – Internal Assessment
Total Marks – 600

ESE - End Semester Examination
Total Periods / week - 24

Total Credits : 21

B. Tech. Chemical Engineering Final Year

w.e.f : Session 2021-22

BoS held on 23.07.2021

New Course Introduced

B.Tech. VII Semester

CH07TPC15 **Chemical Reaction Engineering – II** **[L:3, T:1, P:0]**

Objectives

Graduates shall be able to (a) understand fundamental principles and experimental techniques of heterogeneous reaction systems; (b) apply principles of transfer operation in kinetics studies of heterogeneous reaction systems; (c) analyze the rate controlling step in heterogeneous reaction systems; (d) evaluate the catalytic activity and selectivity influenced by the physical and surface properties of the catalyst.

Contents

Unit-I : Basics of Non-Ideal Flow: Age distribution of fluid, the RTD, Conversion in nonideal flow reactors, Models for non-ideal flow- dispersion model, Chemical reaction and dispersion, Tank in series model.

Unit-II : Mixing of Fluids: Self mixing of single fluid, degree of segregation, Early and late mixing, Mixing of two miscible fluids.

Unit-III : Fluid Particle Reactions: Un-reacted core model: Diffusion through gas film and ash layer control, Chemical reaction control, Rate of reaction for shrinking spherical particles, Determination of rate controlling step.

Unit-IV : Fluid-Fluid Reactions: Kinetic regimes for mass transfer and reaction, Rate equations for various regimes, Film conversion parameter, Application to design, Reactive and extractive reactions.

Unit-V : Catalysis: Heterogeneous catalysts, General characteristics, Adsorption on solid surface, Physical properties of catalysts, Preparation of catalyst, Steps in catalytic reactions, synthesizing the rate law.

Suggested Text Books

1. Chemical Engineering Kinetics by J.M. Smith
2. Chemical Reaction Engineering by Octave Levenspiel
3. Chemical Reaction Engineering by H. Scott Fogler
4. Principles of Reaction Engineering by S.D. Dawande, Central Techno Publications
5. Chemical Engineering by J. M. Coulson and Richardson, Volume IV.

Course Outcomes

Students would be able to (a) explain the concepts of reactor design and reaction kinetics; (b) interpret reactor data; (c) identify ideal reactors and explain various aspects of design for single reactions; (d) explain various aspects of design for multiple reactions, (e) analyze effects of temperature and pressure on conversion.

w.e.f : Session 2021-22 **BoS held on 23.07.2021**

23/07/2021

New Course Introduced