

# **ODISHA JOINT ENTRANCE EXAMINATION-2014**

## **( OJEE-2014)**

### **INFORMATION BROCHURE**



ADMISSION TO  
FIRST YEAR DEGREE COURSES IN  
HOMEOPATHY/AYURVEDA/PHARMACY AND  
DUAL DEGREE IN  
MASTERS DEGREE IN APPLIED MANAGEMENT(MAM)  
MASTERS DEGREE IN COMPUTER APPLICATION(MCA)  
AND LATERAL ADMISSION TO SECOND YEAR (THIRD SEMESTER)  
ENGINEERING/TECHNOLOGY/PHARMACY/ARCHITECTURE/MCA  
AND FIRST YEAR MASTERS DEGREE COURSES IN  
COMPUTER APPLICATION(MCA),BUSINESS ADMINISTRATION(MBA),  
PGDM, PGCM, PGDM( EXECUTIVE), M TECH./ M PHARM/ M ARCH.

**DATE OF EXAMINATION 11<sup>th</sup> MAY 2014**

ODISHA JOINT ENTRANCE EXAMINATION – 2014  
JEE CELL, GANDAMUNADA, KHANDAGIRI  
DIST- KHURDA, BHUBANESWAR  
ODISHA – 751030

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**PROGRAMME FOR  
JOINT ENTRANCE EXAMINATION - 2014, ODISHA  
TABLE-I**

<b>Entrance Test for B.Pharm/ BHMS/ BAMS/ MCA-Dual Degree / B.Tech (Lateral Entry)/B.Pharm(Lateral Entry) / PGAT for M.Tech/ M.Tech(Part Time)/M.Arch and M.Pharm/ MCA/ MCA(Lateral Entry) /MBA / PGDM / PGCM / PGDM(Executive)/MAM.</b>				
<b>Date</b>	<b>1<sup>st</sup> Sitting</b>		<b>2<sup>nd</sup> Sitting</b>	
11.05.2014 (Sunday)	9.00 AM to 11.00 AM	12.00 Noon to 1.00 PM	2.30 PM to 3.30 PM	2.30 PM to 4.30 PM
	Physics / Chemistry / (for 1 <sup>st</sup> year Pharmacy/ /Homoeopathy/ Ayurveda / MCA- Dual Degree) / Test for 1 <sup>st</sup> year MCA/ Test for Lateral Entry (2 <sup>nd</sup> Year) to MCA	Mathematics for 1 <sup>st</sup> year Pharmacy/ MCA-Dual Degree PGAT (Post Graduate Admission Test) for M.Tech / M. Tech (Part Time)/ M.Arch/ M.Pharm./ Test for Lateral Entry to Engg.Technology (2 <sup>nd</sup> Year) for +3 Sc. or B. Sc. (Physics / Chemistry / Mathematics or Biology)/ LE(PHARMA)/Test for Masters degree in Applied Management (MAM)	Biology for 1 <sup>st</sup> year Pharmacy/ Homoeopathy/ Ayurveda	Entrance Test for [MBA/ PGDM/ PGCM/ PGDM (Executive)]/ Test for Lateral Entry(2 <sup>nd</sup> Year) ( <b>Diploma</b> ) to Engineering / Technology

**The salient features of The Orissa Professional Educational Institutions (Regulation of Admission and Fixation of Fee) Act, 2007 are as follows.**

\* **Methods of admission in technical and professional educational institutions:** Subject to provisions of this Act, admission of students in all the technical and private professional educational institutions, Government institutions and sponsored institutions to all seats including lateral entry seats, shall be made through JEE conducted by the Policy Planning Body followed by counselling in order of merit, in accordance with such procedure as recommended by the said body and approved by the Government of Odisha in consonance with the provisions of OPEI(RA&FF) Act 2007.

\* **Prohibition of Capitation fee :** No capitation fee shall be collected by a professional educational institution, sponsored institution or by any person who is in charge of the management of such institution, from any candidate in consideration of his admission to or continuance in any course of study or his promotion to higher class, in such institution under the management.

Where the Policy Planning Body on receipt of any complaint or is otherwise satisfied that the management of such institution or any person who is in charge of the management of such institution has contravened the provisions of the previous section / para, the Body may, after making due enquiry in the manner prescribed, recommend to the Government for imposition of fine not exceeding Rupees Ten Lakhs against the management of such institution for such contravention.

**Note:** "The general public / guardian / parents and students intended to take admission in to different Professional and Technical Institutions of Odisha are hereby informed through this Information Brochure that if they have any complain regarding admission process / procedure, they can file complain in shape of affidavit with supporting authenticated documents to the member Secretary PPB-cum-Principal, Bhubananda Odisha School of Engineering (BOSE), Cuttack who in turn will place the matter to PPB (Policy Planning Body) for disposal under the provisions of Orissa Professional Educational Institutions (Regulation of Admission and Fixation of Fee), Act, 2007".

## IMPORTANT NOTES FOR THE APPLICANT

1. The candidates are required to apply only online as per procedure detailed below.
  - i) Candidates can apply for OJEE - 2014 only "Online".
  - ii) Information Brochure can be downloaded from the website [www.ojee2014.com/](http://www.ojee2014.com/) [www.odishajee.com](http://www.odishajee.com).
  - iii) Online submission of Application Form may be made by accessing OJEE-2014 website [www.ojee2014.com /](http://www.ojee2014.com/) [www.odishajee.com](http://www.odishajee.com).
  - iv) Instructions for Online submission of Application Form are available in Information Brochure and on the website [www.ojee2014.com /](http://www.ojee2014.com/) [www.odishajee.com](http://www.odishajee.com).
  - v) Candidates must follow the instructions strictly as given in the Information Brochure available on the website ([www.ojee2014.com /](http://www.ojee2014.com/) [www.odishajee.com](http://www.odishajee.com)). Candidates not complying with the instructions shall summarily be disqualified.
  - vi) Candidates must retain the following documents with them as reference for future correspondence.
    - (a) At least three printouts of the computer generated Confirmation Page of the Application Form.
    - (b) Proof of fee payment.
    - (c) 7 copies of identical Photograph as pasted on the confirmation Page of Online Application.
  - vii) The fee can be remitted through either of the following ways:
    - (a) By Debit Card (VISA / MASTER / Maestro cards).

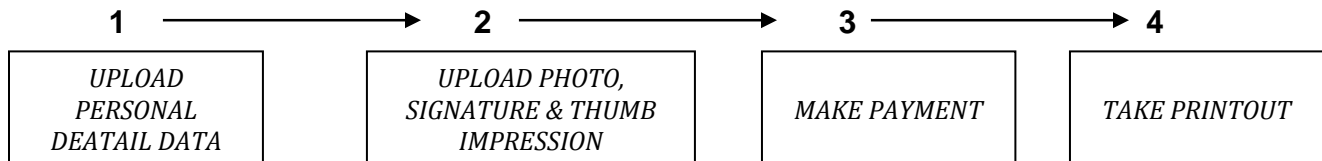
OR

    - (b) Remittance through e-Challan by deposit in OJEE-2014 Bank Account with Bank of Baroda or Syndicate Bank.
2. The candidates should provide all the authentic details while filling up the online form. On submission of details, Application No. shall be generated.
3. **From this year the OJEE- 2014 application has been made completely online i.e. the candidate have to fill the particulars online and also upload their photograph, Signature and thumb impression. Due to above, the provision of sending hard copy of the application i.e. confirmation page to the JEE office is not necessary. Therefore the candidates are advised not to send hard copy of the application i.e. confirmation page to OJEE office.**
4. However, the candidates are advised to retain hard copy of the application i.e. confirmation page along with proof of money transfer for future reference or correspondence, if any.
5. Applicant must quote the seven digit application registration number generated after submission of all his/her required personal data as a reference in all his/her future correspondence with OJEE-2014.
6. Application must be completed in all respect. **Incomplete / unsuccessful submission of application will lead to outright rejection.**
7. **Options such as Category, Choice of place of examination centre and Reservation & Sub-reservation type once given by the applicant in the application form cannot be changed afterwards under any circumstances.**
8. Applicant should give options only with respect to category (S, ZZ, OL, NRI) and Reservation, sub-reservation type (SC/ST/PC/GC/WO/ES/TFW) that he/she can substantiate with documentary evidences during document verification / counselling. There is no provision of up loading any proof of these categories during online submission.
9. Candidates are allowed to submit only one application form. Multiple applications for a particular stream of a candidate are liable to be rejected.
10. After submission of an application, no options can be changed at a later stage.

11. Application fee once paid is non-refundable.
12. Candidates may check the status of their application on OJEE - 2014 website by giving the application number and date of birth.(DD/MM/YYYY)
13. The cost of application is non-refundable.
14. Any dispute arising out of OJEE-2014 shall only be settled and decided under the jurisdiction of Hon'ble High Court of Odisha.
15. Applicant should not upload any document along with the application form to support his/her claim for reservation/category.
16. **Claim for admission will be rejected if the candidate cannot submit the original certificates, mark sheets, other necessary documents at the time of document verification or if one has filled the form wrongly.**
17. **Admission may be cancelled at any time, if certificates/ mark sheets/ other documents are found to be forged or manipulated. A candidate will not be considered for admission if he/she fails to substantiate the claim with respect to reservation, category, nativity, date of birth, qualification etc.**
18. **Facility of submission of application form, payment of fee and printing of the Computer Generated Confirmation Page will be ceased at 05.00 PM on the last day of online-application form fill-up. Hence, candidates are required to complete the process within the prescribed duration.**

**PLEASE FOLLOW THE INSTRUCTIONS GIVEN BELOW BEFORE SUBMITTING THE ON-LINE APPLICATION FORM: - Please Refer Section - 5**

- (a) You have to follow all the instructions in filling up the form and have gone through the important notes carefully.
- (b) You have to retain a printout of the uploaded application form.  
Once duly filled in application form was submitted, no further change will be entertained under any circumstances.



**MODE OF SUBMISSION OF APPLICATION FORM AND FEE DETAILS: - Please Refer Section - 5**

- i) A candidate can apply for the Odisha Joint Entrance Examination (OJEE-2014) through on-line process only by logging on to the website [www.ojee2014.com](http://www.ojee2014.com) / [www.odishajee.com](http://www.odishajee.com).
- ii) The information desired to be filled in the online application may be kept ready.
- iii) Before submission of application form, make the following preparations:
  - Decide the mode of payment of fee.
  - Through Debit Card (VISA/ MASTER/ Maestro cards)/ using on-line gateway payment facility.

OR

  - Depositing in OJEE-2014 Bank Account with Bank of Baroda or Syndicate Bank through auto-generated e-challan.

- (a) If decided to pay fee through Debit card (VISA / MASTER / Maestro cards) check the validity of the Card and keep it ready with you while logging on to website for submitting application form and generation of Confirmation Page.
- (b) If decided to pay fee in the off-line mode, choose the Bank for depositing the Fee through auto-generated e-challan after completing Registration. There will be three copies of the auto-generated e-challan:- (1) the Bank Copy, (2) the student copy - all printed in a single page.
- (c) After Depositing Fee in the Bank the e-challan bearing Application Registration Number, Name and address of the Bank branch with branch code where fee is deposited and transaction ID / journal number be kept ready with you while logging on to website again on the following bank-working day after 11 AM for validation of the payment and final submission of the application form and generation of Confirmation Page.
- (d) Fee Details for submission of Application Form are as follows:

❖ **Cost of Application for Course Codes (33, 34, 35) is Rs 1500/-.**

❖ **Cost of application for all course codes (Except 33, 34, 35) is Rs 1000/-.**

**NOTE:**

- **The candidates must note that after submission of the application form it cannot be withdrawn. Claims for refund of application fee will not be entertained under any circumstances.**

## GENERAL INFORMATION

- 1.1 The Odisha Joint Entrance Examination-2014 will be held on Sunday, 11<sup>th</sup> May, 2014 as per TABLE-I.
- 1.2 A single application form is sufficient for any possible combination of courses to be opted for admission into 1<sup>st</sup> year Pharmacy/ Masters degree in Computer Application (MCA\* – Dual Degree)/ BAMS, BHMS. Similarly, a single application form is sufficient for any possible combination of courses to be opted for admission into 1<sup>st</sup> year MBA/MCA. A single application form is sufficient for any possible combination of courses to be opted for admission into 1<sup>st</sup> year M.Tech/M.Pharm/ M.Arch/ M.Tech (Part Time). Do not fill-up extra/ duplicate forms, as those will be rejected. A single application form is sufficient for any possible combination of courses to be opted for admission into 2nd year Engineering /Pharmacy /Architecture/ MCA. A single application form is required for the Dual Degree course for Masters degree in Applied Management (MAM\*).
- 1.3 For any future correspondence, the seven-digit application registration number generated after online form fill-up should be mentioned.
- 1.4 All the Admit cards will be uploaded at OJEE website from 20<sup>th</sup> - 25<sup>th</sup> April 2014. The candidate has to download two copies of the admit card from the OJEE website which must be endorsed by the Invigilator of the examination centre for allowing the candidate to appear the exam.
- If an applicant fails to take print out of Admit Card from the OJEE-2014 website for the examination by April 25, 2014, then he/she must contact OJEE-2014 office immediately before 30<sup>th</sup> April, 2014.
- If the candidate desires to change any information printed on the Admit card, he/she has to contact OJEE-2014 office immediately after taking the print out of the Admit Card before 30<sup>th</sup> April, 2014.
- Both the download copies of the admit cards should be signed by the invigilator during examination and one copy must be submitted at the examination hall and other should be retained by the candidate. However the submitted admit card may be examined at a later stage to validate the authenticity.
- The candidate has to keep the Admit card duly signed by invigilator till he/she takes final admission in the University /College/Institution.**
- 1.5 **Availability of Courses:**
- OJEE-2014 will be conducted to draw the merit list of successful candidates for admission into:
- (i) B. Pharm. course in the colleges as per list given in Table - 13 for the previous year as an indicator.
  - (ii) MCA course and MCA under lateral entry scheme in the colleges / institutes as per list given in Table – 14 & 15 for previous the year as an indicator.
  - (iii) 3<sup>rd</sup> semester of Engineering / Technology and Pharmacy stream for Diploma holders under lateral entry scheme and 3<sup>rd</sup> semester of Engineering / Technology stream for B.Sc. / +3 Sc. with Mathematics as a subject in +2 level under lateral entry scheme. B. SC./ +3 Sc students are considered for admission only on availability of vacancy after Diploma LE admission.
  - (iv) The total number of seats will be notified during counseling process.

- (v) MBA course in the colleges/ institutes as per list given in Table – 16 & 17 for the previous year as an indicator.
- (vi) The list of colleges / Institute offering for PGDM/ PGCM and PGDM (Executive) as per list given in Table - 18 for the previous year as an indicator.
- (vii) The list of colleges / Institute offering for M.Tech and M.Arch as per list given in Table - 19 for the previous year as an indicator.
- (viii) The list of colleges / Institute offering for M.Pharm as per list given in Table – 20 for the previous year as an indicator.
- (ix) Dual courses in Masters degree in Applied Management (MAM), Masters degree in Computer Application (MCA dual degree). The details of the colleges offering these courses will be given during counseling after due approval from AICTE / UGC/Govt. of Odisha / BPUT / Other University of the state.
- (x) Bachelor of Homoeopathic Medicine and Surgery (BHMS) and Bachelor of Ayurvedic Medicine and Surgery (BAMS) degree courses. The details of the colleges offering these courses will be given during counseling after due approval from Central council of Homoeopathy or central council of Indian Medicine and Government of Odisha.
- (xi) Two supernumerary seats will be given to J & K applicants in all the AICTE/UGC approved colleges.

**Note: List of Colleges/Institutes/University and availability of seats therein are for previous year and this should be used for a reference or as an indicator.**

## 1.6 Fee Structure:

### 1.6.1. Fees payable to colleges/institutes/universities:

Fees payable to colleges/institutes/universities at the time of admission will be decided by the competent authority. The same may also be published in OJEE website during counselling after approval by Government of Odisha.

## 1.7. Age limit:

**The Government of Odisha will not be responsible, wherever there is no age limit for taking admission (as mentioned in the eligibility criteria vide Section 3) for any regulation of service where such requirement for age exists. The candidate should take admission at his / her own risk as regards to age.**

## 1.8. Medical Fitness:

OJEE will not be responsible if a candidate faces difficulty in employment on medical ground. Candidates claiming reservation under physically challenged category will have to go through a Medical Board (Clause 2.1.4). The decision of the Medical Board will be final and binding.

## 1.9. Merit List:

Separate merit list for all qualifying candidates shall be drawn on the basis of OJEE- 2014 results in the following manner.

1. One list for candidates seeking admission to Pharmacy (B.Pharm) degree course on the basis of marks obtained either in Physics, Chemistry and Mathematics or in Physics, Chemistry and Biology whichever is higher.
2. One list for candidates of diploma streams seeking admission under Lateral Entry scheme to engineering and technology (LE in B.Tech) on the basis of marks obtained in diploma test in engineering/technology.
3. One list for candidates of diploma streams seeking admission under Lateral Entry scheme to Pharmacy (LE in B. Pharm) on the basis of marks obtained in diploma test in Pharmacy.
4. One list for candidates of B.Sc. or +3 Sc. **(should have passed Mathematics as a**



**subject in +2 level)** streams seeking admission under lateral entry scheme to engineering / technology (LE in B.Tech) on the basis of marks obtained in +3 Sc / B.Sc test.

5. One list for candidates seeking admission to MCA courses will be on basis of marks obtained in MCA test.
6. One list for candidates seeking admission under Lateral Entry scheme to MCA on the basis of marks obtained in MCA – LE test.
7. One list for candidate seeking admission to MBA / PGDM / PGCM / PGDM (Executive) will be based on marks obtained in entrance test for MBA / PGDM / PGCM / PGDM (Executive).
8. One list for candidates seeking admission to M. Tech course will be on basis of marks obtained in PGAT test.
9. One list for candidates seeking admission to M. Pharm course will be on basis of marks obtained in PGAT test.
10. One list for candidates seeking admission to M. Arch course will be on basis of marks obtained in PGAT test.
11. One list for candidates seeking admission to Dual Degree in Masters degree in Applied Management (MAM) on the basis of marks obtained in MAM test.
12. One list for candidates seeking admission to Dual Degree in Masters degree in Computer Application (MCA) courses on the basis of marks obtained in Physics, Chemistry and Mathematics.
13. One combined list for candidates seeking admission to Bachelor of Homoeopathic Medicine and Surgery (BHMS) and Bachelor of Ayurveda Medicine and Surgery (BAMS) on the basis of marks obtained in Physics, Chemistry and Biology.  
In addition, separate merit lists will also be drawn for candidates qualifying under each of the reservation categories. Each successful candidate shall be given a rank card, which he/she has to download from OJEE-2014 website.

\* Admission to MAM, MCA-Dual degree is subject to approval of the course by AICTE/UGC/Government of Odisha/BPUT/Other University of the state.

2. **Categories: Category and Reservation mentioned here are rules at present. It may change as per Government order.**

2.1. **Odisha State Category (S- Category)**

For admission to colleges under Odisha State Category (**S- Category**) one has to satisfy at least one of the following three criteria:-

- (a) The candidate must have passed/appeared 10+2 examination from any of the recognized institution in the State of Odisha for Bachelor's Degree. The candidate must have passed/appeared +3 Sc / B.Sc. / BCA / B.Tech / B.Pharm / B.Arch for Masters Degree.
- (b) Parents of the candidate other than (a) must be **native** of Odisha. To claim benefit under this category, a candidate shall have to furnish at the time of document verification a "residence certificate", in prescribed form (Appendix-I) from a Revenue Officer not below the rank of Tahasildar of the area to which his/her parents belong as native. The candidate has to submit the nativity certificate in the prescribed format i.e., Appendix-I issued not earlier than January 2014.
- (c) Sons / daughters / spouse of the employees of Government of Odisha / Govt. of India/Govt. of Odisha Undertakings/Govt. of India undertakings, serving in the State of Odisha at the time of application. To claim the benefits under this category, candidate has to submit a certificate from the employer of his/her parents/spouse in

the prescribed form (Appendix-II) at the time of document verification. The candidate has to submit Appendix-II issued not earlier than January 2014.

- (d) Besides above, the reservation facility is also applicable to the Children / wards of All India Civil Service Officers serving in the State at par with the natives of Odisha except the reservations being extended to ST, SC and SEBC categories so far as admission to Professional / Technical Institutions in the State is concerned.

**Candidates belonging to 'S category' will be eligible for admission on the basis of their rank in the merit list to Government & Private colleges and lateral entry (LE).**

**Reservation of Seats under State Categories:**

The reservation of seats in different colleges under various categories will be as per the policy of the Government of Odisha. **The percentage of seats to be reserved for different categories are subject to change and the decision of the State Government in this regard shall be final and binding on the candidate. All Reservations are applicable to natives of Odisha State only and they must produce residence certificate in Appendix – I from Odisha State during document verification.**

- 2.1.1 At present **8% seats in all colleges are reserved for candidates belonging to Schedule Caste by birth (not by marriage or adoption). 12% seats in all colleges are reserved for candidates belonging to Schedule Tribe by birth (not by marriage or adoption).** Separate merit lists will be drawn up for each reserved category. If eligible candidates belonging to a reserved category are not available, seats can be filled up by the candidates belonging to the general category.
- 2.1.2. Candidates applying for SC/ST reserved category shall furnish SC/ST certificate from the Tahasildar of the place of birth in Odisha at the time of document verification in the format given in this brochure (Appendix - III). The candidate has to submit the Cast certificate in the prescribed format i.e., Appendix-III issued not earlier than January 2014.

**NOTE :** Scheduled Caste/Scheduled Tribe persons who have migrated from their state of origin to another state for the purpose of seeking education, employment etc., will be deemed to be scheduled caste/ tribe of the state of their origin and will be entitled to derive benefits from the state of origin and not from the state to which they have migrated. (Vide Govt. India Letter No. BC/160 14.1.82 SC & BCD/ dated 22<sup>nd</sup> Feb, 1985). Thus, SC/ST candidates from Odisha who are staying outside the State have to produce SC/ST certificate from the competent authority of Odisha State during document verification.

- 2.1.3. At present 5% of seats are reserved for children of Green Card holders for B.Tech / B.Arch. / B.Pharm / MCA/ MCA-Dual Degree / MBA / PGDM / PGCM / PGDM(Executive)/MAM. Candidates applying under Green Card category shall furnish the Green card of their parents issued by Family Welfare Department, **Government of Odisha/any other appropriate authority**, in original at the time of document verification. The name, date of birth of the candidate along with the parents' names should match with those mentioned in 10<sup>th</sup> class pass certificate. **If in future it is found that the green card has been obtained by providing wrong information or suppressing facts, the card holder will be deprived of the facilities already obtained and will be liable for legal punitive action.** This reservation for Green Card is not applicable to PGAT (M.Tech/M.Pharm/M.Arch) programmes.
- 2.1.4. At present 3% of seats are reserved for Physically Challenged candidates for admission to B.Tech / B. Arch/ MBA / MCA / PGDM / PGCM / PGDM(Exe) / B. Pharm / MAM\* / MCA-Dual Degree\* courses. The candidates with 40% disabilities in consonance with section-39 of the Persons with Disabilities (Equal opportunities, Protection of Rights and Full participation) Act, 1995 are eligible to be considered under Physically Challenged Category for admission to B.Tech / B. Arch/ MBA / MCA / PGDM / PGCM / PGDM(Exe) / B. Pharm / MAM\* / MCA-Dual Degree\* courses.
- The medical standard of PC category candidates will be decided by a medical board

specifically constituted with Senior Professors of the premier medical college and hospital: SCB Medical College, Cuttack, and Chairman OJEE-2014 or his representative under the Chairmanship of Principal, SCB Medical College or his nominee, that they are eligible to be categorized as Physically Challenged candidates and capable of undergoing each part of the requirements for B.Tech / B. Arch / MBA / MCA / PGDM / PGCM / PGDM(Exe) / B. Pharm / MAM\* / MCA-Dual Degree\*. **The decision of this Board will be final and binding.** They SHOULD NOT therefore, submit along with the application form any medical certificate to the effect that they are Physically Challenged.

2.1.5. At present 3% of seats in Engineering Colleges for B.Tech are reserved for children/wards of ex-servicemen who are native of Odisha. Candidates applying under Ex-Serviceman reserved category shall furnish a certificate in the prescribed format provided in this brochure as Appendix-IV at the time of document verification.

2.1.6. **At present 30% of the seats in all the categories [except Outside State (ZZ), Non-resident Indians (NRI), OL and TFW category] are reserved for women candidates for B. Tech, B. Arch, MBA, MCA, PGDM / PGCM and PGDM (Executive), / MAM\* / MCA-Dual Degree\* courses.**

2.1.7. Seats up to maximum 5 percent of sanctioned intake per course are available for admissions under Tuition Fee Waiver Scheme [TFW] for B.Tech, B.Arch, B. Pharm, Lateral Entry for these programme. These seats are supernumerary in nature.

**Eligibility criteria for Tuition Fee Waiver Scheme [TFW]:**

i. Sons and daughters of parents whose annual income is less than Rs. 4.50 lakhs (Rupees four lakh and fifty thousand only) from all sources are eligible for seats under this scheme. The candidates who will be interested in taking admission under this scheme have to produce income certificate issued by local Tahasildar (Appendix - VII) during document verification.

ii. The waiver is limited to the tuition fee as approved by the Government of Odisha Fee Committee for self-financing Institutions and by the Government for the Government Institutions. All other fees except tuition fee will have to be paid by the beneficiary.

iii. The candidate should be a native of Odisha.

iv. TFW scheme is applicable to all AICTE/UGC approved technical institution offering Bachelor Programs of four year duration.

v. Candidate has to produce the following documents for claiming TFW scheme at the nodal centre during document verification.

a) Resident of Odisha certificate. (Appendix –I). The candidate has to submit the Residence certificate in the prescribed format i.e., Appendix-I issued not earlier than January 2014.

b) Income certificate of parents from local Tahasildar (Appendix-VII). The candidate has to submit the Income certificate in the prescribed format i.e., Appendix-VII issued not earlier than January 2014.

2.1.8 For admission into 1<sup>st</sup> year Bachelor of Homoeopathic Medicine and Surgery (BHMS) and Bachelor of Ayurvedic Medicine and Surgery (BAMS) degree courses; reservation applicable will be given before the counseling after due approval from the Government of Odisha.

**2.2. OL Category:** [Oriyas (Odias) belonging to outlying Oriya (Odia) speaking tracts] **(Notification NO:13411-SC-6-64/69-Gen Political & Service Department, Govt of Odisha Dt. 8/8/1969)**

2.2.1 Due to settlement of boundaries of states some Odia speaking areas have been merged in other neighbouring states as a result of which the Odias living in these areas who are now residents of other states have been deprived of studying Oriya (Odia) language or Oriya (Odia) culture. 3% of seats in Government Engineering colleges are reserved for Odia speaking people residing outside the State of Odisha. OL reservation is not applicable to

private engineering colleges. However, they will be considered under outside state (ZZ) category for private colleges. OL reservation is also not applicable to MBA/ MCA/ Pharmacy / PGDM / PGCM and PGDM (Executive) / LE/ M.Tech / M.Pharm / M.Arch./MAM/ MCA-Dual Degree streams.

**2.2.2** A candidate eligible to avail the reservation under OL Category must have:

- (i) The candidate has to submit a nativity certificate from outside the state of Odisha in the prescribed format i.e., Appendix-V issued not earlier than January 2014. [Appendix – V is the Certificate of Authenticity of Oriyas (Odias) belonging to Outlying Oriya (Odia) Speaking Tract].

**AND**

The candidate has to pass an Odia examination with minimum 40% marks to be conducted by OJEE 2014 committee at the time of counseling process.

- (ii) The candidate must have passed 10+2 Science examination from outside Odisha.

**2.3 Non-Resident Indians: (NRI)**

**NRI means Sons and Daughters of an Indian citizen who ordinarily reside outside India and hold an Indian passport.**

**For NRI the number of seats will be provided following the provisions of OPEI (RA&FF) Act 2007 and norms of AICTE/UGC in this regards.**

*In the event of non-availability of students in NRI category, the seats will be given to general candidates as per general merit. However, general fee shall be applicable to these candidates thus admitted against vacant NRI seats.*

The candidate eligible to avail NRI category must produce

- (a) Copies of passport
- (b) Work permit
- (c) Equivalence certificate of the qualifying examination at the time of document verification.

Students admitted under this scheme shall not be allowed to change Institution / course under any circumstances.

**2.4 Outside State Category: (ZZ)**

Outside state candidates are not eligible for admission in Government Colleges to Engineering / MBA /MCA/ PGDM/ PGCM and PGDM (Executive) courses and under lateral entry programmes.

Outside state candidates are eligible for admission in Private Engineering (B.Tech 1<sup>st</sup> year only) / Private Pharmacy (B.Pharm 1<sup>st</sup> year only) / Private MBA/ Private MAM /Private MCA/ Private MCA-Dual degree /Private PGDM/ Private PGCM and Private PGDM (Executive) colleges as per their eligibility criteria following the Govt. of Odisha guidelines in this regards.

**Number of Seats and Reservation**

Exact number of seats and branches will be notified through OJEE-2014 web site before counselling.

- i. Only natives of Odisha state will be eligible to avail all reservations seats under 2.1.
- ii. Seats available under General Category in any course are those “available after deducting the number of seats pertaining to all the Reserved Categories from the total number of seats available for that particular course after taking into account the All India Quota (JEE(MAIN)-2014, CAT, XAT, CMAT, MAT etc.) and NRI quota in that course”.

***There is no reservation category for Engineering Lateral Entry both for Diploma Holders as well as for +3 Sc. / B.Sc. degree holders.***

During admission process all the above mentioned norms will be verified as per Govt. of Odisha

order and will be adopted.

## **TRANSFER OF VACANT SEATS:**

Transfer of vacant seats from one category to another is applicable only when there are vacant seats in that category. For example, if some SC seats are vacant after all allotment, then those seats will be transferred to General seats. Similarly if ST reserved category are not filled up due to non-availability of candidates belonging to ST category, then vacant seats may be filled up by candidates belonging to General Category.

**Seats reserved under all other category like PC, GC, Ex-Servicemen etc will be filled up by general category candidates in case the same are not filled up from the reserved category except TFW category.**

In case of any change in the percentage of reservation of seats / reservation criteria mentioned in the clause above on the basis of guidelines from PCI / MHRD / AICTE/ UGC / Government of Odisha, it will be intimated through the Counselling-cum-Admission Instructions to all the merit listed candidates. It will also be published in OJEE-2014 website.

### **3. Minimum Eligibility Criteria:**

#### **3.1 For admission to 1<sup>st</sup> Year Degree courses in Pharmacy BAMS and BHMS.**

##### **3.1.1. Pharmacy:**

Passed or appearing in 2014, 10+2 examination of CHSE, Odisha or equivalent with Physics and Chemistry as compulsory subjects along with one of the subjects from Mathematics / Biotechnology / Biology / Technical Vocational Subject. The candidate should have passed individual subject and must have obtained at least 45% marks (40% in case of candidate belonging to SC/ST category) in the above subjects taken together.

There is no age limit to appear at OJEE-2014 for admission into Pharmacy courses.

##### **3.1.2. Bachelor of Homoeopathic Medicine and Surgery (BHMS) and Bachelor of Ayurvedic Medicine and Surgery (BAMS)**

Passed in 10+2 Science or appearing in 2014 examination of CHSE, Odisha or equivalent, with Physics, Chemistry & Biology (Botany and Zoology) with at least 50% marks in aggregate (Physics, Chemistry & Biology taken together) for general category candidates and 40% marks in aggregate for SC/ ST candidates.

AGE: The lower age shall be 17 years as on December 31, 2014. The upper age shall be 25 years as on December 31, 2014. The upper age limit may be relaxed by **five** years for SC/ST candidates. The candidates have to submit H.S.C. or equivalent certificate in support of age during certificate verification at the time of counseling. {Candidate must born on or between (a) 01.01.90 to 01.01.98 (Other Category) (b) 01.01.85 to 01.01.98 (SC/ST Category)}

#### **3.2 For admission to Lateral Entry**

##### **3.2.1. For admission into 2<sup>nd</sup> year Degree courses in Engineering/Technology courses under Lateral Entry for Diploma holders:**

**A.** Passed or appearing in 2014, in three year diploma examination (two year in case of Lateral entry Diploma) in Engineering from State Council of Technical Education and Training (SCTE&VT), Odisha or from an AICTE approved Institute / from a recognized University as defined by UGC with at least 45% marks (40% in case of candidates belonging to SC/ST category) in appropriate branch of Engineering / Technology.

**B.** The native of Odisha as well as the outside state candidates who have prosecuted their study for the qualifying examination in an Institute in Odisha having approval

from the competent authority are eligible for admission under Lateral Entry. But, separate merit list shall be drawn for such outside state candidates and they will be allowed for admission in the remaining vacant seats, if any, after the state merit list is fully exhausted through centralized counseling conducted by the JEE committee. Results of final diploma examination must be available on the date of document verification during counselling.

- C.** There is no reservation of seats in various categories in lateral entry to degree Engineering/Technology (B.Tech) courses.

The candidates who is a native of Odisha must submit the Residence Certificate (Appendix-I) at the time of document verification. The candidate has to submit the Residence certificate in the prescribed format i.e., Appendix-I issued not earlier than January 2014.

**Choice of Discipline:**

Candidates having Diploma in Engineering/Architecture in the discipline indicated in Column-I are eligible to be admitted to their corresponding discipline only mentioned in Column-II of **Table-11** based on merit list. The diploma offered by NTTG Gopalpur is recognized equivalent to diploma course offered by SCTE & VT, Odisha, Bhubaneswar.

Further the students who have passed diploma in Engineering and technology from an AICTE approved Institution and having a rank in lateral entry shall also be eligible for admission to the first year class subject to vacancies in the first year class, in case the vacancies in lateral entry are exhausted. However the admission shall be based strictly on the basis of OJEE-2014 rank only.

There is no age limit to admission to this course.

**3.2.2 For admission into 2<sup>nd</sup> year Degree courses in Pharmacy courses under Lateral Entry for Diploma holders:**

- A.** Passed or appearing in 2014 in diploma examination in two years diploma course after XII standard in Pharmacy with minimum 45% (40% in case of candidate belong to SC / ST category) of marks in aggregate from Odisha State Board of Pharmacy (OSBP) or SCTE&VT or from an AICTE approved Institution / from a recognized University as defined by UGC for direct admission to the third semester degree courses.

- B.** The native of Odisha as well as the outside state candidates who have prosecuted their study for the qualifying examination in an Institute in Odisha having approval from the competent authority are eligible for admission under Lateral Entry. But, separate merit list shall be drawn for such outside state candidates and they will be allowed for admission in the remaining vacant seats, if any, after the state merit list is fully exhausted through centralized counseling conducted by the JEE committee. Results of final diploma examination must be available on the date of document verification during counseling.

- C.** There is no reservation of seats in lateral entry to degree Pharmacy courses. The candidates who is a native of Odisha must submit the Residence Certificate (Appendix-I) at the time of document verification. The candidate has to submit the Residence certificate in the prescribed format i.e., Appendix-I issued not earlier than January 2014.

Further, the students having rank in lateral entry shall also be eligible for admission to the first year class subject to vacancies in the first year class in case the vacancies in lateral entry are exhausted. However, the admission shall be based strictly on the basis of OJEE-2014 rank only.

There is no age limit to admission to this course.

### **3.2.3 For admission to 2<sup>nd</sup> year Degree courses in Engineering/Technology under Lateral Entry for B. Sc./ +3 Sc. students :**

- A. Passed or appearing in 2014, for the Bachelor's Degree examination of three years duration in Science from any University of Odisha or from a recognized University as defined by UGC, with at least 45% marks (40% in case of candidates belonging to ST/SC category) and must have passed XII standard with Mathematics as a subject.
- B. Further even though the student in this stream are admitted to second year course, **they have to clear the subjects of Engineering Graphics / Engineering Drawing and Engineering Mechanics of the first year engineering program along with the second year subjects.**

The candidates who is a native of Odisha must submit the Residence Certificate (Appendix-I) at the time of document verification. The candidate has to submit the Residence certificate in the prescribed format i.e., Appendix-I issued not earlier than January 2014.

#### **Choice of Discipline: (for Lateral Entry Stream)**

Candidates having B. Sc. or +3 Sc. with mathematics in class XII as a subject are eligible to be admitted to any discipline of engineering as per availability of seats.

**The students belonging to B. Sc / +3 Sc. stream shall be considered only after filling the supernumerary seats in the lateral entry category with students belonging to Diploma stream.**

Students who have passed B.Sc / +3 Sc degree from a recognized University as defined by UGC shall also be eligible for admission to the first year engineering degree courses subject to vacancies in the first year class in case the vacancies at the lateral entry are exhausted. The admission shall be based strictly on the eligibility criteria mentioned above and after filling the vacant seats of the first year engineering degree courses by the lateral entry engineering applicants belonging to Diploma stream.

There is no age limit to admission to this course.

### **3.3 For admission to Master degree in Computer Application**

#### **3.3.1. For admission into 1<sup>st</sup> year Master degree in Computer Application:**

Passed or appearing in 2014, for the Bachelor's Degree examination of minimum three years duration in any discipline from any University of Odisha or from a recognized University as defined by UGC and must have passed in Mathematics at 10+2 level or at Graduate Level. Business Mathematics at +2 level are not permitted.

The candidate should have obtained at least 50% (45% in case of candidate belonging to SC/ST category) at the qualifying Examination.

**If the candidate has passed BCA with mathematics as a subject, he/she may appear the entrance test without Mathematics at 10+2 level.**

There is no age limit to admission to MCA course.

#### **3.3.2 For admission into Master in Computer Application under Lateral Entry to 2<sup>nd</sup> year:**

Passed or appearing in 2014, for the Bachelor's Degree examination of minimum three years duration in BCA, B. Sc (IT/ Computer Science) from any University of Odisha or from a recognized University as defined by UGC and must have passed in Mathematics as a course at 10+2 level or at Graduate Level. Business Mathematics at +2 level are not permitted.

The candidate should have obtained at least 50% (45% in case of candidate belonging to SC/ST category) at the qualifying Examination.

There is no age limit to admission to 2<sup>nd</sup> year MCA under Lateral Entry course.

### **3.4 For admission to MBA/PGDM/PGCM/PGDM(Executive)**

#### **3.4.1 MBA/PGDM**

Passed or appearing in 2014, for the Bachelor's Degree examination of minimum three years duration from any University of Odisha or from a recognized University as defined by UGC/AICTE.

**OR**

Passed or appearing in 2014, for the Bachelor's Degree in Engineering / Technology / Pharmacy examination of minimum four / five years duration in any discipline from any University of Odisha or from a recognized University as defined by UGC/AICTE.

The candidate should have obtained at least 50% marks (45% in case of candidate belonging to SC/ST category) at the qualifying examination.

There is no age limit to for admission to MBA / PGDM course.

#### **3.4.2 PGCM**

Passed or appearing in 2014, for the Bachelor's Degree examination of minimum three years duration in any discipline from any University of Odisha or from a recognized University as defined by UGC/AICTE.

**OR**

Passed or appearing in 2014, for the Bachelor's Degree in Engineering / Technology / Pharmacy examination of minimum four / five years duration in any discipline from any University of Odisha or from a recognized University as defined by UGC/AICTE.

There is no age limit to for admission to PGCM course.

#### **3.4.3 PGDM (Executive)**

Passed the Bachelor's Degree examination of minimum three years duration in any discipline from any University of Odisha or from a recognized University as defined by UGC and a minimum of 5 years relevant managerial / supervisory experience.

**OR**

Passed or appearing in 2014, for the Bachelor's Degree in Engineering / Technology / Pharmacy examination of minimum four / five years duration in any discipline from any University of Odisha or from a recognized University as defined by UGC/AICTE.

The candidate should have obtained at least 50% marks (45% in case of candidate belonging to SC/ST category) at the qualifying examination.

There is no age limit to for admission to PGDM (Executive) course.

### **3.5 For admission to M.Tech/M.Tech (PT) / M. Pharm / M. Arch**

#### **3.5.1.a M.Tech (Regular)**

Passed or appearing in 2014, Bachelor's Degree of examination in the relevant field from any University of Odisha or from an AICTE approved Institute or from a recognized University as defined by UGC.

The candidate should have obtained at least 50% marks (45% in case of candidate belonging to SC/ST category) at the qualifying examination.

#### **Choice of Specialisation:**

Candidates having Bachelor in Engineering in the discipline indicated in Column-I are eligible



to be admitted to their corresponding discipline only mentioned in Column-II of **Table-12** based on merit list.

There is no age limit to for admission to M.Tech (Regular) course.

### **3.5.1.b M.Tech (Part Time)**

Passed the Bachelor's Degree of examination in the relevant discipline/field/program from any University of Odisha or from an AICTE approved Institute or from a recognized University as defined by UGC.

and

Minimum of Two years full time work experience in a registered firm / Company / Industry / Educational and / Government, Autonomous Organisations in the relevant field in which admission is sought.

#### **Choice of Specialisation:**

Candidates having Bachelor in Engineering in the discipline indicated in Column-I are eligible to be admitted to their corresponding discipline only mentioned in Column-II of **Table-12** based on merit list.

There is no age limit to for admission to M.Tech (Part-Time) course.

### **3.5.2 M.Pharm**

Passed or appearing in 2014 Bachelor's Degree of examination or equivalent in Pharmacy from any University of Odisha or from an AICTE approved Institute or from a recognized University as defined by UGC.

The candidate should have obtained at least 50% marks (45% in case of candidate belonging to SC/ST category) at the qualifying examination.

There is no age limit to for admission to M.Pharm course.

### **3.5.3 M.Arch**

Passed or appearing in 2014 Bachelor's Degree of examination in the relevant field in Architecture from any University of Odisha or from an AICTE approved Institute or from a recognized University as defined by UGC.

The candidate should have obtained at least 50% marks (45% in case of candidate belonging to SC/ST category) at the qualifying examination.

#### **Choice of Specialisation:**

Candidates having Bachelor in Architecture in the discipline indicated in Column-I are eligible to be admitted to their corresponding discipline only mentioned in Column-II of **Table-12** based on merit list.

There is no age limit to for admission to M.Arch course.

### **3.6. For admission to Dual Degree course:**

#### **3.6.1. For admission to Masters degree in Applied Management (MAM)**

Passed or appearing in 2014, 10+2 examination of CHSE, Odisha or equivalent. The candidate should have passed all the individual subject and must have obtained at least 45% marks (40% in case of candidate belonging to SC/ST category) in all the subjects taken together.

There is no age limit to appear at OJEE-2014 for admission into MAM courses.

The admissions for this course shall be effected on the basis of merit list of students passed in various streams at 10+2 examination as, Science stream 20 seats, Commerce stream 20 seats, Arts Stream 20 seats in 60 seat strength.

In case of non availability of students from one stream, remaining seats in that stream may

be allotted to students from other two streams on equal basis. In case of non availability of students from two streams, remaining seats in those streams may be allotted to students from third stream.

Student who discontinues the studies after 3 years of successful instructions shall be eligible for award of Bachelors degree in Management (BM), at the end of 4 years of studies student shall be eligible for Bachelors degree in Applied Management (BAM) and at the end of 5 years study student shall be eligible for Masters degree in Applied Management (MAM). BAM degree shall not be awarded to one who has acquired BM degree. However, a certificate for credits acquired at 4th year shall be issued to the student.

### 3.6.2. For admission to Five year Dual Degree Course in MCA

Passed or appearing in 2014, 10+2 examination of CHSE, Odisha or equivalent with Physics and Mathematics as compulsory subjects along with one of the subjects from Chemistry / Biotechnology / Biology / Technical Vocational subject. The candidate should have passed individual subject and must have obtained at least 45% marks (40% in case of candidate belonging to SC/ST category) in the above subjects taken together.

Student who discontinues the studies after 3 years of successful instructions will be eligible for award of Bachelors degree in Computer Applications (BCA), at the end of 5 years study student will be eligible for Masters degree in Computer Applications (MCA).

There is no age limit to appear at OJEE-2014 for admission into MCA-Dual Degree courses.

#### IMPORTANT NOTES:

- (i) Candidates should fulfill the requirements of reservations under clauses 2.1 as applicable.
- (ii) **Women and Physically challenged candidates are not eligible for admission to Mining Engineering Course.**
- (iii) Candidates desirous to be admitted to Engineering colleges/institutes of outside state under DTE&T quota seats have to fulfill other conditional eligibility requirements of the institute concerned, as per data to be received by OJEE from D.T.E.&T, Odisha.
- (iv) **The Govt. of Odisha will not be responsible for any regulation of service where requirement for age exists. The student should take admission at his/her own risk, as regards to ages.**

#### 4. Subjects for appearing at OJEE-2014:

- (a) Candidates seeking admission to B. Pharm. course shall have to appear in Physics, Chemistry and either Mathematics (60 questions in each subject) or Biology (60 questions, 30 each in Botany and Zoology) or both. The duration of the examination for these subjects are as per Table-I. Ranking will be done on the basis of marks obtained either in Physics, Chemistry and Mathematics or in Physics, Chemistry and Biology whichever is higher (detail syllabus given in section 7.1, 7.1.1- Physics, 7.1.2- Chemistry, 7.1.3- Mathematics, 7.1.4- Botany, 7.1.5- Zoology).

- (b) All Diploma holders seeking admission to 2<sup>nd</sup> year Degree courses under Lateral Entry scheme shall have to appear entrance test in one paper as follows:

For Diploma in Engineering / Technology shall cover the syllabus of Mathematics, Basic Electrical Engineering, and Engineering Mechanics with 40 questions each (detail syllabus given in section 7.2). The duration of the examination for these subjects are as per Table-I.

For Pharmacy stream, the paper shall cover the syllabus of part - I and part - II of Diploma in Pharmacy as per the Education Regulation - 1991 of Pharmacy Council of

India (Total 60 questions). The duration of the examination for these subjects are as per Table-I.

- (c) All B.Sc. or +3 Sc. with Mathematics in +2 level candidates seeking admission to 2<sup>nd</sup> year Degree Engineering courses under Lateral Entry scheme shall have to appear the entrance examination (in +3 Sc. / B.Sc. Physics - 15 questions, Chemistry – 15 questions, and either Mathematics – 30 questions or Biology - 30 questions, 15 each in Botany and Zoology) which will be held in one sitting as per Table – I (detail syllabus given in section 7.3).
- (d) All candidates seeking admission to MCA course shall have to appear the entrance examination in Mathematics – 60 questions and Computer Awareness – 60 questions in one sitting of two hour duration as mentioned in Table – I (detail syllabus given in section 7.5).
- (e) All candidates seeking admission to MCA course under Lateral Entry Scheme shall have to appear the entrance examination in Mathematics – 60 questions and Computer Awareness – 60 questions in one sitting of two hour duration as mentioned in Table - I (detail syllabus given in section 7.8).
- (f) Candidates seeking admission to MBA / PGDM / PGCM / PGDM (Executive) course shall have to appear an Entrance test in verbal and analytical reasoning, general knowledge, comprehension and computer and business fundamentals (Total 120 questions as per section 7.6 in one sitting mentioned in Table - I).
- (g) All candidates seeking admission to 1<sup>st</sup> year Master Degree courses in Engineering / Technology(both Regular and Part-Time)/ Pharmacy/Architecture shall have to appear the respective courses examination as per detail syllabus of BPUT regulation (Total 60 questions in one sitting as per Table - I).
- (h) All candidates seeking admission to 1<sup>st</sup> year **Masters degree in Applied Management (MAM)** shall have to appear have to appear an Entrance test in verbal and analytical reasoning, general knowledge and comprehension (Total 60 questions as per section 7.7 in one sitting mentioned in Table - I).
- (i) All candidates seeking admission to 1<sup>st</sup> year degree courses in **Five year Dual Degree Course in MCA** shall have to appear in Physics, Chemistry and Mathematics (60 questions in each subject) for a total duration of three hours in two sittings as mentioned in Table-I . (detail syllabus given in section 7.1).
- (j) Candidates seeking admission to Bachelor of Homoeopathic Medicine and Surgery (BHMS) and Bachelor of Ayurvedic Medicine and Surgery (BAMS) degree courses shall have to appear in Physics, Chemistry (60 questions in each subject) and Biology (60 questions, 30 each in Botany and Zoology). The duration of the examination for these subjects are as per Table-I. Ranking will be done on the basis of marks obtained either in Physics, Chemistry and Biology. (detail syllabus given in section 7.1).
- (k) All the admission subject to the Government of India's Gazette Notification No. 44 dated 01.03.1995 issued by Ministry of Human Resource Development (Department of Education).

## DISCIPLINES

The intake capacity of the colleges based on approval of AICTE/UGC/ Govt. of Odisha shall be considered for counselling process.

\* The tuition fee will be communicated before the counselling for admission through OJEE website and in the counselling brochure after due approval from Government.

### {\*} Abbreviation for Disciplines:

AEIE -	Applied Electronics & Instrumentation Engg	E&TC -	Electronics & Telecommunication Engg.
BIOMED -	Biomedical Engg	ENV -	Environmental Engg
BIOTECH -	Biotechnology	EIE -	Electronics & Instrumentation Engineering
CHEM -	Chemical Engg.	IT -	Information Technology
COMP.Sc.-	Computer Sc. Engg.	MECH -	Mechanical Engg.
ELECT -	Electrical Engg.	MET -	Metallurgy & Meterial Sc.
EEE -	Electrical & Electronics Engg.	MANU -	Manufacturing Sc. & Engg.

All the seats mentioned in different tables are as approved by AICTE/ UGC / GOVT. OF ODISHA for the academic year 2013-14, which should only be used as an indicator.

Counselling through OJEE-2014 will be done for admission to these courses subject to approval of Government of Odisha / BPUT / Other Universities of Odisha/ Central Council of Homoeopathy and Central Council of Indian Medicine / Other affiliating Councils.

### MAM/ MCA

Colleges offering Dual Degree (i) Masters degree in Applied Management (MAM) and (ii) Masters degree in Computer Application (MCA):

. These courses are newly introduced. Admission to these courses will be subject to approval of Government of Odisha / BPUT / Other University of Odisha. The list of such colleges offering Dual degree after due approval by Government of Odisha / BPUT / Other University of Odisha will be duly notified at the time of counselling.

### BHMS / BAMS

Colleges offering Bachelor of Homoeopathic Medicine and Surgery (BHMS) and Bachelor of Ayurvedic Medicine and Surgery (BAMS) degree courses:

The details of the colleges offering these courses will be given during counseling after due approval from Central council of Homoeopathy or central council of Indian Medicine and Government of Odisha.

### 5. INSTRUCTIONS FOR COMPLETING OJEE-2014 APPLICATION FORM.

Before filling up the application form the candidate should have a scanned image of his/her **photograph, signature and thumb impression** (left hand thumb for boys and girls). These scanned images are to be uploaded during the submission of application form. The photograph should be colour or b/w (but clear contrast) with name of the candidate and date

of taking the photograph printed on it as shown below. It should be without cap or goggles. Spectacles are allowed. Polaroid photos are not acceptable. Candidates with unclear photograph are liable to be rejected. Candidates may keep 6-8 identical photographs in reserve for use at the time of entrance examination, Counselling and Admission.

**Method of Submission of Application Form:**

- The candidate has to log on to website [www.ojee2014.com](http://www.ojee2014.com) / [www.odishajee.com](http://www.odishajee.com)
- The candidate/parent has to read carefully the information brochure and instructions to fill the online submission of Application Form.
- Then he/she has to go to the link 'Online Application Form Submission' and open the same.
- Once the candidate clicks 'Online Application Form Submission', four links will appear as 'A, B, C1, C2 and C3'.
  - A) For B. Pharm, BAMS, BHMS, MCA(Dual Degree)
  - B) For LE (Engg, Pharma & Arch) & B. Sc.(LE)
  - C1) For M.C.A. / M.B.A./ PGDM/ PGCM/ PGDM(Executive) / MAM /MCA-LE.
  - C2) For PGAT(M.Tech/M.Tech(PT)/M.Arch/M.Pharm).
  - C3) For Combination
    - 1. [MBA/PGDM/PGCM/PGDM(Executive)] and MCA
    - 2. [MBA/PGDM/PGCM/PGDM(Executive)] and LE-MCA
    - 3. [MBA/PGDM/PGCM/PGDM(Executive)] and PGAT

- (a) Fill in the on-line application form (6.1 – 6.30) and note down the registration number after submission.

After submission of the required data asked during online form fill-up, the candidate has to click, submit button. At the bottom of the next page, two buttons "Next" and "Back" are given. After opening "Next", information submitted can be checked and if information is correct, go for "Final Submit" otherwise go for "Back".
- (b) The application fee can be remitted in the following ways:

Make payment of fee through Debit/Credit Card (VISA / MASTER / Maestro cards)/

**OR**

e-Challan mode for payment in the designated accounts of State Bank of India /Syndicate Bank. If the candidate wants to pay the fee through e-Challan mode, he/she can pay the application fee only after filling the online application form. The e-challan will be auto-generated by taking the data from the filled-in application form.

- (c) Fill in the rest of the on-line Application Form furnishing the details of fee deposited.
  - (i) The candidate has to follow the instructions and submit the fee through bank gateway. After successful submission of fee, program will take the candidate to take print out of **Confirmation Page**. The candidate is advised to note down the transaction number for payment of fee for future use.
  - (ii) Those who have paid the fee through bank e-challan, they have to enter the journal number given by bank. After depositing Fee in the Bank, the e-challan bearing Application Registration Number, Name and address of the Bank with branch code where fee is deposited and journal number must be kept ready for further use while logging on to website again on the following bank-working day after 11 AM for validation of the payment and final submission of the application form and generation of Confirmation Page for onward submission to OJEE office through speed post/registered Post. In the payment page at the bottom of the page, two links "Next" and "Reset" are given. After opening "Next", information submitted can be checked and if information is correct, go for "Final

Submit” otherwise go for “Back”. After successful submission of fee, program will take the candidate to take print out of **Confirmation Page**.

- The instructions must be followed to take the print out of Confirmation Page in standard A4 size page.
- Facility of submission of application form, payment of fee and printing of the computer generated completed application form would be ceased at 05.00 p.m. on the last day of online application submission mentioned in the last page of this brochure. Hence, candidates are required to complete the process within the prescribed duration positively.
- **Please note that the applicant’s name, parents’/guardian’s name(s), and date of birth should exactly be the same as mentioned in the High School or his/her first Board/ Pre-University examination certificate. Any deviations, whenever discovered, may lead to cancellation of the applicant’s candidature.**
- **The candidate’s application form must be complete in all aspects while submitting the on-line application form. Incomplete application will summarily be rejected without any notice.**
- **Options filled by the candidate in the application form cannot be changed at a later stage under any circumstances.**

**5.1 Candidate’s Name:**

Candidate should enter his/her name, as given in High School Certificate of Board/University.

**5.2 Mother’s Name:**

The candidate should enter his/her mother’s name. Wherever possible, it should be same as that mentioned in High School Certificate of Board/University of the candidate.

**5.3 Father’s Name:**

The candidate should enter his/her father’s name as given in High School Certificate of Board/University and has to produce the documentary proof at the time of document verification.

**5.4 Guardian’s Name (other than Father & Mother):**

The candidate should enter his/her Guardian’s name (**other than** Father & Mother).

**5.5 Course : [Do not fill multiple codes in this item]**

The candidate should enter the appropriate code from the drop down menu in the corresponding field against the course code / qualifying code given in:

1. Table -2 for Pharmacy & MCA-Dual degree/ BAMS/BHMS.
2. Table -3 for MCA, MBA, PGDM, PGCM, PGDM (Executive) & MCA-Lateral Entry.
3. Table - 4 for admission to second year programme in a particular discipline or possible combinations.
4. Table - 5 for admission to second year programme ENGG/ TECH. for +3 Sc / B.Sc. with mathematics as subject at XII standard.
5. Table- 6 for M.Tech, M.Arch & M.Pharm.
6. Table - 7 for Masters degree in Applied Management (MAM).  
that he/she wants to appear.

**Examination time-table will not permit other combinations of courses. If the applicant having passed or going to appear +3 Sc / B.Sc. wants to appear for both Lateral Entry (2<sup>nd</sup> year Engineering/Technology) and MBA, PGDM, PGCM, PGDM (Executive), then she/he has to apply one application form and pay the right fees.**

**Similarly if the applicant having passed or going to appear in 2014 Bachelor’s Degree of**

examination in the relevant field from any University of Odisha or recognized University as defined by UGC/AICTE wants to appear for both PGAT and MBA, PGDM, PGCM, PGDM (Executive) then he/she has to apply one application form with its course code and payment. Refer Table 3(B) for these codes.

5.5.1 For Admission to First Year Programme (BAMS/BHMS(AURVEDA & HOMEOPATHY), Pharmacy, MCA – Dual degree and): Code (01 to 07) Refer- Table- 2

5.5.2. For Admission to First year MBA /MCA /PGDM/ PGCM/ PGDM (Executive) Programme: Code (30,31,32) Refer- Table-3(A), code 33,34,35 for combination Refer table 3(B).

5.5.3 For Admission to Second Year Programme (Under Lateral Entry) : Code (51 to 73) Refer- Table-4

5.5.4 For Admission to Second Year Programme Under Lateral Entry for +3 Sc / B.Sc. with mathematics as subject at XII standard Scheme : Code (74) Refer- Table-5

5.5.5 For Admission to First Year M.Tech / M.Pharm / M.Arch: Code (18 - 29) Ref Table-6

5.5.6 For Admission to First year Masters degree in Applied Management (MAM) Programme: Code (36) Refer Table-7

**5.6 Nationality :**

The candidate has to enter the nationality he/she belongs to.

Nationality \* :

**5.7 Category:**

Refer Clause No. 2 of this brochure for ascertaining the category to which the candidate belongs. (S-Odisha State, NRI-Non-Resident Indians, ZZ-Outside State, OL- [Oriyas (Odias) belonging to outlying Oriya (Odia) speaking tracts]

Candidate should fill his/her category as per Clause No. 2.

**5.8 Reservation:**

Category	Code
General	GE
Scheduled Caste	SC
Scheduled Tribe	ST

**5.9 Sub Reservation:**

Sub Reservation	Code
Ex-Servicemen	ES
Women	WO
Children of Green Card Holder	GC
Physically Challenged	PC

Candidates belonging to S-Category (eligible to claim reservation as per Clause 2.1) and seeking admission under reservation in any of the above sub reservation categories are required to enter the exact sub reservation category. **(multiple choices may be given if he/she belongs to more than one sub reservation category).**

**5.10. Gender :**

The candidate has to enter the appropriate field he/she belongs to.

**5.11. Mother Tongue: Refer Table 9**

**5.12. Date of Birth :**

The candidate should enter the exact date, month and year of birth as per English calendar and as recorded in the School/Board/Pre-University examination Certificate in foemat dd/mm/yyyy.

**5.13 Place of Examination Centres:**

Table – 8 gives a list of the places where probable centers for the OJEE-2014 will be located. The candidate should select three different places in order of his/her preference. The candidate should enter the appropriate codes. An OJEE-2014 centre may be cancelled owing to poor response, operational difficulties or any other reason. Candidates may not necessarily be allotted a particular place as OJEE-2014 centre from their filled in choices.

**5.14. Qualifying Examination:**

The candidate should enter the appropriate qualifying examination, he/she passed or is appearing in 2014.

Qualifying Exam \* : 

**5.15 Board of Qualifying Examination:**

- (i) +2/Equivalent
- (ii) Diploma/Equivalent as approved by UGC/AICTE/SCTE&VT
- (iii) +3 Science/Bachelor Degree/Equivalent as approved by UGC / AICTE.
- (iv) B.Tech/B.Arch/B.Pharm/Equivalent as approved by UGC / AICTE.

**5.16 Year of (Pass/Appearing) Qualifying Examination:**

- (i) For MCA-Dual degree / BHMS / BAMS / MAM: Those who have already passed 10+2 or an equivalent qualifying examination should indicate the year of passing. Those who are appearing for their qualifying examination in 2014 should enter appearing 2014.
- (ii) MCA / MBA / PGDM / PGCM/ PGDM (Executive) / M. Tech /M. Pharma / M.Arch / MCA – Lateral entry: Those who have already passed Bachelor’s Degree in qualifying examination should enter the year of passing in the online application form. Those who are appearing for their qualifying examination in 2014 should enter appearing 2014.
- (iii) Lateral Entry: Those who have already passed Diploma or B.Sc. or +3 Sc. or BCA examination should indicate the year of passing. Those who are appearing for their qualifying examination in 2014 should enter appearing 2014.

**5.17 Percentage of Marks in Qualifying Examination:**



The candidate has to fill in the actual percentage of aggregate marks obtained in the qualifying examination in this box if the results are available otherwise he/she has to leave it blank. The candidate has to enter only integer part of the percentage of marks and ignore the decimal point. For example 76.15, 76.56 or 76.90 should be taken as 76 only.

**5.18 Contact Details :**

The candidate should enter the complete postal address to which any communication is to be sent. The address must include his/her name, C/o name if required, House No. / Block / Locality / City / Town / Village / Post / District / State / Country and other details including the PINCODE for the mail to reach his/her desired postal address. The candidate should not enter his/her e-mail id in the address field.

**5.19 E-mail :**

The candidate must give his/her active e-mail address where all the correspondence can be done.

**5.20 Mobile phone Number : (Without 0 & +91)**

The candidate should mention his/her mobile number in the space provided, on which he/she can be contacted or a message can be sent to him/her.

**5.21 Phone Number including STD Code : (Without +91)**

The candidate should enter his/her phone number in the space provided, if there is any, with STD code, on which he/she can be contacted.

**5.22 District of Permanent Residence:**

The candidate should choose the district of residence of Odisha. If the candidate belongs to a state other than Odisha, he/she should choose 'others' from the drop down menu.

**Refer - TABLE- 10**

**5.23. District of Current Residence:**

The candidate should choose the district of current residence of Odisha. If the candidate belongs to a state other than Odisha, he/she should choose 'others' from the drop down menu. **Refer-Table-10**

**5.24. Parents' Total Annual Income:**

The candidate should enter the appropriate range of income. The parental income should include all sources of income of the parents.

**5.25. Tuition Fee Waiver (TFW) Scheme:**

The candidate has to enter whether he/she wishes to be considered for seats under Tuition Fee Waiver (TFW) scheme (refer section 2.1.7)

**5.26. Parents' Educational Background:**

The candidate should enter the appropriate educational background of his/her parents.

**5.27 Photograph :**

**Candidates are advised to take 8-10 passport size photographs with white background. Passport size photographs are to be used for fixing the photograph at the space provided on Computer Generated Confirmation Page. It is expected that the candidate**

will have the same appearance at the time of examination and counselling as in the **UPLOADED** photograph. The photographs must be taken on or after 01.12.2013 indicating clearly the name of candidate alongwith the date of taking the photograph as shown below. Photograph should not have cap or goggles.



**Spectacles are allowed if being used regularly. POLAROID and COMPUTER generated photos are not acceptable. Applications not complying with these instructions or with unclear photographs are liable to be rejected. Candidates may please note that if it is found that photograph uploaded is fabricated i.e. de-shaped or seems to be hand-made or computer made, the form of the candidate will be rejected and the same would be considered as using unfair means practices and the candidate would accordingly be dealt with the rules of unfair means.**

- 5.28 Signature (Black / Blue ball point pen only) : Scanned signature has to be up loaded.**
- 5.29 Left Hand Thumb Impression: Put your thumb impression on paper and scan it to uoload.**

**To be uploaded during the submission of online application form**

<b>File</b>	<b>Format</b>	<b>File Size</b>	<b>Dimension</b>
<b>Photograph of Candidate</b>	<b>JPEG format</b>	<b>10KB to 500KB</b>	<b>3.5cm x 4.5cm</b>
<b>Signature of Candidate</b>	<b>JPEG format</b>	<b>10KB to 500KB</b>	<b>3.5cm x 1.5cm</b>
<b>Thumb impression of Candidate</b>	<b>JPEG format</b>	<b>10KB to 500KB</b>	<b>3.5cm x 1.5cm</b>

**5.30. Declaration by the Candidate:**

The candidate must submit a declaration to the effect that the filled-in entries in the online application process of OJEE-2014 are true to his/her knowledge and belief.

Note: 1) Facility of submission of application form, payment of fee and printing of the Computer Generated Confirmation Page would be ceased at 05.00 p.m. on the last day of online-application form fill-up. Hence, candidates are required to complete the process within the prescribed duration.

**ADMIT CARDS:**

Admit cards will be uploaded at OJEE website ([www.ojee2014.com](http://www.ojee2014.com) / [www.odishajee.com](http://www.odishajee.com)) from 20<sup>th</sup> - 25<sup>th</sup> April, 2014. The candidate has to download two copies of the admit card from the OJEE website which must be endorsed by the Invigilator of the examination centre for allowing the candidate to appear the exam.

If an applicant fails to take print out of Admit Card from the OJEE-2014 website for the examination by April 25, 2014, then he/she must contact OJEE-2014 office immediately before 30<sup>th</sup> April, 2014.

If the candidate desires to change any information printed on the Admit card, he/she has to contact OJEE-2014 office immediately after taking the print out of the Admit Card before 30<sup>th</sup> April, 2014.

A photograph identical to the one pasted on the confirmation slip must be kept with the candidate during Examination.

One copy of the admit card duly signed by the invigilator must be submitted at the examination hall and other should be retained by the candidate. However the submitted admit card may be examined at a later stage to validate the authenticity.

The candidate has to keep the Admit card duly signed by invigilator until he/she takes final admission in the University /College/Institution.

No complaints will be entertained for non-downloading of admit cards after Odisha Joint Entrance Examination - 2014 is over.

## 6. Rules for Entrance Examination:

- i) The joint Entrance Examination will be held as per the Scheduled date and time mentioned in Table-I.
- ii) The medium of examination is English.
- iii) The examination hall shall be opened to the candidates half an **hour before** the commencement of the examination. No candidates will be allowed to enter in the examination hall without a valid downloaded admit card. The downloaded admit card should be endorsed by the Invigilator of the examination centre.
- iv) Candidates are required to take their respective seats at least **15 minutes** before the commencement of the examination, strictly according to the sitting chart notified earlier by the Centre Superintendent.
- v) In no case, a candidate is allowed to enter the examination hall after the examination starts.
- vi) Attendance will be taken by the invigilators on the attendance sheets in which the candidates shall have to put their full signature against their corresponding roll numbers. Also the candidates have to give his/her left hand Thumb Impression against their corresponding roll numbers in the space provided. During Examination, the candidates have to enter their Application Number, answer sheet number, and question series number against their roll number in the roll sheet provided.
- vii) No candidate will be allowed to leave the hall without surrendering his/her answer sheet(OMR) until the examination is over. Ordinarily no candidate is allowed to leave the hall temporarily during the examination.
- viii) Candidates suffering from any disease and their subsequent presence in the examination, if, is undesirable in the interest of other candidates, then he/she will not ordinarily be allowed to enter the examination hall. Also the candidates are not allowed to have a substitute writer.
- ix) **Candidates should bring their own black /blue ball point pen, for writing and blackening the circle in the answer OMR.** Books, printed papers (other than their Admit Cards), Manuscripts or electronic gadgets such as mobile phones, cell phones and electronic diary, calculators etc, must not be taken into the examination hall. In case these prohibited materials are found, the candidate will be debarred from appearing the examination and asked to leave the Hall.
- x) The candidates are advised to inspect the question booklet and answer sheet about its completeness before attempting to answer. In case page/ pages are found missing, torn or not in order, the candidates should immediately report to the invigilator and get a fresh question answer book issued after surrendering the defective one.
- xi) Candidates are not permitted to talk to each other in the examination hall. No one should receive any help from or assist another in any manner. Malpractice of any form detected during or after the examination would entail not only cancellation of candidature but also more severe punishment as deemed fit by the OJEE committee.

- xii) A candidate should write his/her roll number as assigned in his/her admit card and sign in the place provided in the question booklet and answer sheet. He/ she should on no account write anywhere in the answer sheet his/her own name, roll number or anything else that is not strictly connected with the answers to the question given. Writing of any such thing or false roll number is a serious offence. The answer sheet without the candidate's roll number clearly written in space provided will not be examined.
- xiii) A candidate wishing to say anything should stand up in his/her seat and remain standing until the invigilator attends to him/her. He/she should on no account leave the seat or make any noise to draw the invigilator's attention.
- xiv) The Centre Superintendent is empowered to take necessary decisions on any other matters, which are not provided in these rules.

### **6.1 Examination Procedure / Valuation methodology :**

There will be multiple choice type questions. The number of questions will be sixty (60) per each hour of examination. Each question shall have four answers (including one correct answer) and the examinee shall have to blacken only the appropriate circle/oval (which he/she considers most correct) in black / blue ball point pen. Each correct answer shall fetch four marks. Each unattempted question will fetch zero. There is no negative marking. If more than one circles are darkened for one question, it will be treated as an incorrect answer. Blank answer OMR sheet without being darkened in any one of the answer circles will summarily be rejected. No rank will be awarded to such applicants submitting blank answer OMR sheet.

The Answer Sheet consists of two pages, the top one is the Original answer sheet whereas the annexed one is the carbon copy. The page is divided into Part-A and Part-B. Part – A of the original sheet contains the details such as Roll No., Question Booklet number, Name and signature of the candidate, Name of the centre, Signature of the Invigilator.

The Part – B of the answer sheet is meant for recording the answers by darkening the appropriate circle(s) by the candidate.

Whatever written/marked impression is made on the main sheet, the second sheet will reproduce the same. This will be detached **by the invigilator** and returned to the candidates at the end of the examination.

### **6.2 Issue of Marks**

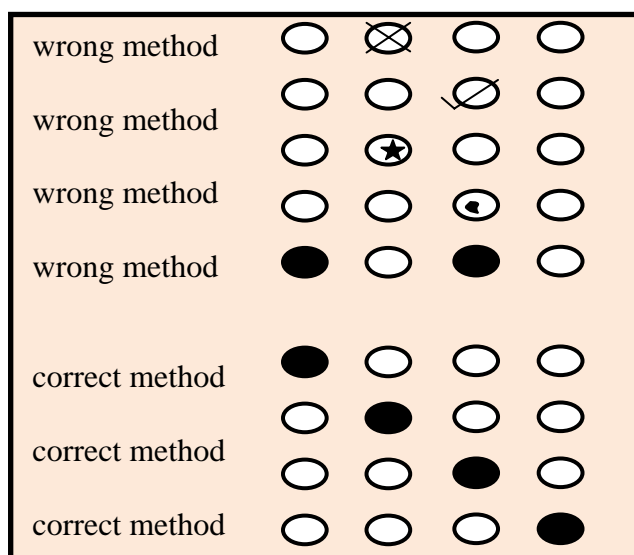
Candidates desirous of knowing subject-wise marks secured by them should make a written request enclosing a demand draft of Rs. 400/- (Rupees four hundred only) in favour of "OJEE-2014" drawn on any Nationalised Bank at Bhubaneswar, so as to reach the OJEE office within 10 days of the publication of result.

### **6.3 Re-totalling and Review:**

The OJEE answer sheets are all machine evaluated with adequate care taken to make them error free. Based on the evaluation a merit list is prepared. There is no award of class. Mark sheets are not issued in general. A candidate, may however request for re-totalling / re-addition with a fee of Rs.500/- (Rupees five hundred only) in the shape of demand draft in favour of OJEE-2014 drawn on any nationalised bank in Bhubaneswar so as to reach the OJEE office within seven calendar days of the publication of OJEE – 2014 result. Re evaluation of answer script is not permissible. A committee will manually verify the results and its decision will be final and binding on the applicant. The candidates are allowed to take question papers after the examination is over.

## 6.4 Wrong / Correct ways of Marking :

### Wrong & Correct Methods of showing your answer



Each question is followed by answers which have numbers A B C and D. Then by using black / blue ball point pen darken the circle bearing the correct answer in the answer sheet against the corresponding number of the question. The wrong & correct method of answering is illustrated above.

## 6.5 Sample Questions

- If we dip capillary tubes of different radii  $r$  in water and water rises to different height  $h$  in them, then.
  - $h/2 = \text{constant}$
  - $h/r = \text{constant}$
  - $hr = \text{constant}$
  - $hr^2 = \text{constant}$
- The drug taxol is obtained from the bark of
  - Pacific Yew
  - Eucalyptus
  - Cinnamon
  - Cinchona
- The number of different types of F-S-F bond angles in  $\text{SF}_4$  are
  - two
  - one
  - three
  - four
- The integral  $\int_0^2 (1-x) dx$  equals :
  - 1
  - 0
  - 3
  - 2

## 7 SYLLABI

### 7.1 [PHARMACY / Bachelor of Homoeopathic Medicine and Surgery (BHMS) / Bachelor of Ayurvedic Medicine and Surgery (BAMS) / Masters degree in Computer Application (MCA-Dual Degree)]

The Syllabi given hereunder for OJEE-2014 are only illustrative and not exhaustive. The syllabi are in line with courses of studies in Science stream for the Higher Secondary Examination 2014 of CHSE, ODISHA. Since OJEE is conducted with a view to preparing merit lists for admission the decision of the OJEE Committee as regards the scope of the syllabus is FINAL.

#### 7.1.1 PHYSICS (60 Questions)

**Measurements and Motion:** Fundamental and derived physical quantities, Concept of Mass, Length and Time, Measurement of different quantities in SI Units. Errors in measurement, Combination of errors, Dimension of physical quantities, Dimension analysis of physical quantities- Conversion of physical quantities from one system of units to another. Concepts of vectors and scalars, Components of vectors, Unit vectors, Addition, Subtraction and Multiplication (vector & scalar) of vectors. Lami's Theorem. Equations of linear motion for uniformly accelerated bodies (by calculus method). Newton's laws of motion, Conservation of energy and momentum, Collision in one dimension, Work, Power, Energy, Sliding and Rolling friction. Circular Motion- radial and tangential acceleration, Centripetal force, Banking of tracks, Kepler's laws of Planetary Motion (Statements only). Newton's law of Gravitation. Earth satellites- Orbital and Escape velocities. Moment of Inertia- definition and expression of Moment of Inertia for rod, ring and circular disc (about an axis passing through the centre and perpendicular to the plane of the body). Angular momentum and Conservation of angular momentum, Projectile motion.

**Heat & Thermodynamics:** Concept of Temperature, Scales of Temperature (Celsius, Fahrenheit, Kelvin), Definition of mechanical equivalent of heat (J), Thermal energy, Heat Capacity, Specific heat of solids and liquids, Latent heat, Heat transfer- Thermal conductivity of solids, Steady state, Kirchhoff's laws of heat radiation, Stefan's law of heat radiation, Newton's Law of cooling.

Kinetic Theory of gases- Pressure of an ideal gas, Kinetic interpretation of temperature, Degrees of freedom, Law of equipartition of energy.

First Law of Thermodynamics, Specific heats of a gaseous system, Relation between  $C_p$  and  $C_v$ , Work done during Isothermal and Adiabatic processes, Carnot's conceptual heat engine and its efficiency, Second law of thermodynamics, Absolute Scale of Temperature.

**Characteristics of Materials:** Elastic and Plastic behaviors of solids, Elastic limit, Young's modulus, Shear and Bulk modulus, Poisson's ratio.

**Liquids :** Surface Tension and Surface Energy, Excess pressure across a spherical liquid surface, Expression for capillary rise. Streamlined and turbulent flow, Bernoulli's equation and its application, Viscosity- coefficient of viscosity, Stokes law.

**Electricity & Magnetism :** Electric field intensity and Potential at a point in an electric field, Relation between them, Capacitance- dielectric constant and its effect on capacitance. Series and parallel grouping of capacitances, Energy stored in a charged capacitor, Ohm's law, Variation of resistance of metallic conductors with temperature, Kirchhoff's laws and its application to a balanced Wheatstone bridge. Combination of Cells and resistors- series and parallel. Heating effect of electric current and Joule's law, Electric power and electric energy. Magnetic Permeability and Susceptibility of materials, Properties of dia, para and ferro magnetic materials.

Biot-Savart's law- Magnetic Field due to a circular coil at its centre. Moving coil galvanometer (dead beat only). Force on a moving charge in a uniform magnetic field. Faraday's laws of electromagnetic induction, Lenz's law, emf induced in a rotating coil in a magnetic field. Alternating current- Self and Mutual induction, Phase relation between Voltage and Current in pure resistive, capacitive and inductive circuits. Principle of transformer, elementary idea on electromagnetic waves.

**Wave motion:** Simple harmonic motion, wave propagation, characteristics of wave motion, longitudinal and transverse waves, superposition of waves:- Stationary waves, Beats. Open and closed organ pipes, velocity of sound in air- effect of pressure, temperature and humidity on it. Doppler Effect, laws of transverse vibration of string (Statement only).

**Optics:** Reflection and refraction at curved surfaces. Spherical mirror and thin lens formula and refraction through prism. Total internal reflection, Dispersion, Huygens principle (statement only), Young's double slit experiment.

**Electronic Devices:** Thermionic emission, Statement of Richardson's equation and Child's Law, Vacuum triode- construction and characteristics, relationship between valve constants, Descriptive idea of energy bands:- conductors, insulators and semi conductors, Intrinsic and extrinsic semiconductors, p-type and n-type semiconductors. PN junction, PNP and NPN transistor, PN Junction as a rectifier.

**Relativity and Nuclear Physics:** Postulates of special theory of relativity, variation of mass with velocity (Statement only), mass energy equivalence relation (Statement only). Atomic nucleus, nuclear forces, nuclear mass, binding energy, mass defect, artificial radio activity, radio isotopes and their uses. Nuclear fission, energy released during nuclear fission, chain reaction, controlled chain reaction, nuclear fusion, energy generation in the Sun, radiation hazards.

## 7.1.2 CHEMISTRY (60 Questions)

### General behaviour of matter:

**Solid State :** Characteristics, Classification, Solubility, Melting points, Crystal structure of simple ionic compounds. Radius ratio and coordination number: density calculation, lattice points and voids.

**Liquid State :** Characteristics, Boiling and Freezing points, Viscosity, Surface tension, Osmosis, Raoult's law, Lowering of vapour pressure, Depression of freezing points, Elevation of boiling points, Anomalous molecular masses; Association and dissociation.

**Solutions :** Types of solutions, concentration and different ways of expressing concentration (percentage, ppm, strength, normality, molarity, molality and formality); Interrelations

**Gaseous State :** Gas laws, Kinetic model of gases, ideal gas equation, Van der waals' equation, compressibility factor, Average, root mean square and most probable velocities.

**Atoms and molecules :** Symbols, Valency, Atomic mass, Molecular mass, Avogadro's law, Mole concept, Determination of equivalent mass of zinc and copper, Atomic mass by Dulong Petit's method and Molecular mass by Victor Mayor's method. Stoichiometry and calculations based on stoichiometry.

**Structure of atoms and molecules :** Fundamentals particles and their properties, Rutherford and Bohr models of atom, Hydrogen spectrum, Energy levels, Shells and Sub-shells, s, p and d orbitals, Quantum numbers, Pauli's exclusion principle, Aufbau-principle, Hund's rule, Electronic configuration of atoms, Extra stability of half filled and filled subshells.

**Chemical bonds :** Ionic, Covalent, Coordinate and Hydrogen bond, Hybridisation-  $sp$ ,  $sp^2$ ,  $sp^3$ ,  $dsp^2$ ,  $dsp^3$ ,  $d^2sp^3$  shapes of molecules, VSEPR theory, Molecular Orbital Theory of simple diatomic molecules.

**Periodic classification :** Periodic table and periodic laws, s, p, d and f block elements, Periodicity in properties such as atomic and ionic radii, ionization enthalpy, electron gain enthalpy, electronegativity and oxidation states.

### Chemical energetics, equilibrium and kinetics:

**Energetics:** Internal energy, Enthalpy, Heats of reactions, Bond energy, Hess's law, Idea on enthalpy, entropy and free energy, spontaneity and conditions of equilibrium.

**Equilibria :** Reversible reaction, Law of mass action, Equilibrium constant  $K_p$ ,  $K_c$ ,  $K_x$  and their relation. Its application to ammonia synthesis and dissociation of HI, Decomposition and thermal dissociation. Theory of acids and bases, Dissociation of weak acids and bases, Ostwald's dilution

law, Ionic product of water, Common ion effect, Solubility product and their applications, pH, Hydrolysis of salts, Buffer solutions.

**Kinetics** : Rate of reaction, Factors affecting the rate, Rate constant, Order and Molecularity of a reaction, Simple zero and First order reaction, Half life period, Arrhenius equation and Activation Energy, Collision theory (qualitative idea only)

**Types of chemical reaction** : Neutralisation and oxidation– Reduction reaction, Equivalent mass, Oxidation number, Balancing chemical reactions, by Ion electron method, Reactions involving  $\text{KMnO}_4$ ,  $\text{K}_2\text{Cr}_2\text{O}_7$ ,  $\text{Na}_2\text{S}_2\text{O}_3$ , oxalate etc.

**Non-metals** : Group study, Preparation, Properties and uses of elements of compounds of hydrogen (ortho and para hydrogen, isotopes of hydrogen,  $\text{D}_2\text{O}$  and  $\text{H}_2\text{O}_2$ ). Allotropes of carbon, Nitrogen family ( $\text{NH}_3$  and  $\text{HNO}_3$ ). Oxygen and sulphur family ( $\text{O}_2$ ,  $\text{H}_2\text{S}$ ,  $\text{SO}_2$ ,  $\text{H}_2\text{SO}_4$  and its manufacturer by contact process), Halogens, Hydrogen halides and Interhalogen compounds, Zero group elements (properties & uses).

**Electrochemistry** : Electrolysis, Electrical Conductivity (Specific, Equivalent and molar), Faraday's laws, Kohlrausch law, Galvanic cell, Cell reaction, Nernst equation, Standard electrode potential, Electro chemical series e.m.f. of simple cells. Fuel cells.

**Nuclear chemistry** : Radio activity, Rate of disintegration, Group displacement law, Half-life and average life period, Stability of nuclear (N/P ratio) Carbon dating, Nuclear Fission and Fusion. Induced radioactivity by protons, neutrons and alpha particles.

**Metals and metallurgy** : Occurrence of metal, Minerals and ores, flux, slag calcination, roasting, smelting (by reduction of oxides) and refining. General trends in the characteristics, principles of extraction of Na, Mg, Ca, Al, Cu and Fe and their oxides, hydroxides, chlorides, nitrates and sulfates.

**Organic chemistry:**

**Introductory** : Functional Groups and organic radicals, Nomenclature by IUPAC system (substitutive method) , Isomerism (Structural and stereoisomerism – optical and geometrical) EZ & RS nomenclature, Electron mobility – Inductive effect, Resonance, Electromeric effect and Hyperconjugation; their applications. Types of organic reactions – addition, substitution, elimination reactions. Idea of electrophiles and nucleophiles; Reaction intermediates – idea of carbocations, carbanion & free radicals; their stabilities.

**Aliphatic compounds:** Methods of preparation and properties of alkanes, alkenes, alkynes (acidity of terminal alkynes), haloalkanes, alcohols, aldehydes, ketones, carboxylic acids, acid derivatives (acid chlorides, esters and amides), nitroalkanes and amines.

**Aromatic compounds** : Aromaticity (Huckel's rule), Aromatic hydrocarbon (Preparation and reactions – Substitution, addition, ozonolysis) Phenols (Preparation and reactions) : Aldehydes (Preparations and reactions); Acids (Preparation and reactions). Amines (Preparation and reactions); Diazonium salts (synthetic application).

**Biochemistry** : Biological importance of organic compounds such as carbohydrates, amino acids, proteins, lipids and nucleic acids (only by metabolic process).

**Chemistry in the service of mankind** : General idea on fertilizers, pesticides, polymers (nylon, terylene, neoprene, buna-S, PVC, Teflon & bakelite). Medicine-analgesic, antipyretic, antibiotic and antiseptic (structure and preparation not required).

**Environmental chemistry:** Source, effect and control measures of air and water pollution.

### 7.1.3 MATHEMATICS (60 Questions)

**Logic** : Statement, Negation, Implication, Converse, Contrapositive, Conjunction, Disjunction, Truth Table. Different methods of proof, Principle of Mathematical induction.

**Algebra of sets** : Set operation, Union, Intersection, Difference, Symmetric difference, Complement, Venn diagram, Cartesian product of sets, Relation and functions, Equivalence relation, Kinds of functions and their domain and range, Composite function, Inverse of a function.



**Number system** : Real numbers (algebraic and order properties, rational and irrational numbers), Absolute value, Triangle inequality,  $AM \geq GM$ , Inequalities (simple cases), Complex numbers, Algebra of complex numbers, Conjugate and square root of a complex number, Cube roots of unity, De Moivre's theorem with simple application. Permutations and Combinations - simple applications, Binomial theorem for positive integral index, Identities involving binomial coefficients.

**Determinants and matrices** : Determinants of third order, Minors and cofactors, Properties of determinants, Matrices upto third order, Types of matrices, algebra of matrix, adjoint and inverse of matrix, Application of determinants and matrices to the solution of linear equations (in three unknowns).

**Trigonometry** : Compound angles, Multiple and Submultiple angles, Solution of trigonometric equations, Properties of triangles, Inverse circular function, Sum and product of sine and cosine functions.

**Co-ordinate geometry of two dimensions** : Straight lines, Pairs of straight lines, Circles, Equations of tangents and normals to a circle, Equations of parabola, Ellipse and hyperbola in simple forms, their tangents and normals. Condition of tangency. Rectangular and Conjugate hyperbolas.

**Coordinate geometry of three dimensions** : Distance and Division formulae, Direction cosines and direction ratios, Projection, Angle between two planes, Angle between a line and a plane. Distance of a point from a line and a plane. Equation of a sphere – general equation, Equation of sphere when end points of diameter are given.

**Quadratic polynomials** : Roots of quadratic polynomial, Factorisation of quadratic polynomials, Maximum and minimum values of quadratic polynomials for all real values of the variable, sign of the quadratic polynomial for all real values of the variable, Solution of quadratic inequations.

**Sequence and Series** : Definition, Infinite geometric series, Arithmetico-geometric series, Exponential and Logarithmic series.

**Vectors** : Fundamentals, Dot and cross product of two vectors, Scalar triple product and vector triple product, Simple application of different products.

**Differential calculus**: Concept of limit, Continuity of functions, Derivative of standard Algebraic and Transcendental functions, Derivative of composite functions, functions in parametric form, Implicit differentiation, Successive differentiation (simple cases), Leibnitz theorem, Partial differentiation, Application of Euler's theorem, Derivative as a rate measure, Increasing and decreasing functions, Maxima and Minima, Indeterminate forms, Geometrical application of derivatives such as finding tangents and normals to plane curves.

**Integral calculus**: Standard methods of integration (substitution, by parts, by partial fraction, etc), Integration of rational, irrational functions and trigonometric functions. Definite integrals and properties of definite integrals, Areas under plane curves.

**Differential equations** : Definition, order, degree of a differential equation, General and particular solution of a differential equation, Formation of a differential equation, Solution of a differential equations by method of separation of variables, Homogeneous differential equations of first order

and first degree, Linear differential equations of the form  $dy/dx + p(x)y = q(x)$ , Solutions of differential equations of the form  $d^2y/dx^2 = f(x)$

**Probability and statistics:** Average (mean, median and mode). Dispersion (standard deviation and variance), Definition of probability, Mutually exclusive events, Independent events, Compound events, Conditional probability, Addition theorem.

**Number system :** Decimal, binary, octal, hexadecimal numbers and their conversion.

#### 7.1.4 BOTANY (30 Questions)

**Diversity of plant life:** Five kingdom system of classification with their merits and demerits.

Structure, reproduction and economic importance of Bacteria and Viruses.

Life history of representative members of different plant groups: *Spirogyra*, *Saccharomyces*, *Funaria*, *Dryopteris*, *Cycas*.

**Morphology of angiosperms :** Normal and Modified roots, stems and leaves, Inflorescence, Flower and its parts, Pollination, Fertilization, Fruits.

**Taxonomy of flowering plants :** Principles and units of classification (species, genus, family) Binomial nomenclature,

Studies of important families: Malvaceae, Fabaceae, Asteraceae, Brassicaceae, Liliaceae.

##### **Cell: Structure and function**

Cell Theory, Totipotency, Prokaryotic and Eukaryotic cell, Structure of typical plant cell: Cell Wall, Cell Membrane, Cell Organelles (Plastids, mitochondria, endoplasmic reticulum, ribosomes, Golgibodies, Lysosomes, Peroxisomes). Important compounds of cell: Structure and functions of water, aminoacids, proteins, carbohydrates and fats.

Properties and chemical nature of enzymes. Mode of enzyme action.

**Continuity of life :** Cell division: Mitosis, Meiosis and their significance, Mendel's laws of inheritance: Monohybrid and Dihybrid cross, Incomplete dominance, Multiple allelism.

**Genetic material:** Structure of nucleic acids. Evidences to establish 'DNA as genetic material' (Griffith and Avery's experiment). Concept of gene, Transcription and translation in Prokaryotes. Regulation of gene expression – induction and repression.

**Recombinant DNA and Tissue culture technique:** Recombinant DNA techniques and its significance. Gene bank, Production of Transgenic plants with examples, Tissue culture technique.

**Complexities of plant life:** Meristematic and tissues, Internal structures of dicot and monocot stems, roots and Isobilateral and Dorsiventral leaves, Normal secondary growth in dicot stem.

**Processes in plants :** Diffusion, Osmosis, Plasmolysis, Imbibition, Absorption and transport of water and minerals, Transpiration and its significance, Life energy and ATP, Respiration and fermentation, Photosynthesis, Biological nitrogen fixation. Growth and development: Growth regulators – Physiological effects of Auxins, Gibberellin, Cytokinin, Ethylene and Abscissic acid. Elementary idea of photoperiodism and vernalisation. Plant movements (with special reference to geotropism and phototropism).

**Ecology :** Man and environment, Ecological adaptations (Hydrophytes and Xerophytes), plant succession (Hydrosere, Xeresere), Structure and function of Ecosystem.

**Economic Botany :** Economic importance of plants like Rice, Gram (green gram) Jute, Groundnut, Mango, Tulsi.

**Common plant diseases :** Symptoms and control measure of following plant diseases: Powdery mildew of peas, Bacterial blight of rice, Mosaic disease of Papaya.

#### 7.1.5 ZOOLOGY (30 Questions)

**Animal world :** Definition, Scope and branches of Zoology. Characteristics of living organisms (elementary idea of metabolism, transfer of energy at molecular level, open and closed system, homeostasis, growth & reproduction, adaptation, survival and death).

**Classification** (Artificial, Natural, Phylogenetic) Two-Kingdoms & Five-Kingdoms – their merits and demerits. Species concept, binomial nomenclature, scientific names of some common animals: Fishes – Rohi, Bhakura, Mirikali, Kau. Amphibians – Frog, Toad. Reptiles – House Lizard, Garden Lizard, Crocodile, Turtle, Cobra, Krait. Birds – Fowl, Peacock, Pigeon, Crow. Mammals – Tiger, Elephant, Cat, Dog, Rabbit and Man.

### **Diversity of Animal life :**

#### **Introductory Concept:**

- (1) Concept of body plan, symmetry, coelom, germ layers, homeothermic and poikilothermic animals.
- (2) Salient features of Non-chordate phyla with examples, General characters of chordates upto class levels with examples.

**Animal Morphology:** Morphology of Paramecium, Sycon, Hydra Planaria, Ascaris, Earthworm, Cockroach, Pila, Starfish, Amphioxus, Bony fish, Cartilaginous fish, Frog, Calotes, Pigeon & Rabbit.

**Animal Histology:** Types – Epithelial, Connective (details about blood and lymph), Muscular & Nervous – Organs and Organ Systems.

**Animal Locomotion:** Joints and Muscles in movement of man, mechanism of muscle contraction, Disorders – Arthritis and Osteoporosis.

**Animal Physiology:** Animal Nutrition – Intracellular and Intercellular digestion, Digestive system of cockroach, Digestive system and process in human (ingestion, digestion, absorption, assimilation and egestion) role of hormones in digestion, malnutrition and under-nutrition.

**Animal Respiration:** Types of respiration (cutaneous, tracheal, branchial and pulmonary), Structure and function of respiratory system in man: Respiratory organs, mechanism of pulmonary respiration, pulmonary exchange of gas, transport of gases. Common respiratory disorders – prevention and cure.

**Animal Circulation:** Open circulation, closed circulatory system in man, Structure of Heart, Cardiac Cycle, Arteries, Veins, Capillaries, Portal System, Coronary Circulation, Blood Pressure, Respiratory pigments, Blood groups (A B O & Rh), Blood Coagulation, Blood related disorder – Hypertension, Atherosclerosis & Arteriosclerosis, Pace maker.

**Animal Excretion:** Types of Excretion (Ammonotelism, ureotelism and uricotelism), Excretion in cockroach, Excretion in human – Structure and function of kidney, Role of liver in excretion: Ornithine Cycle. Disorders related to excretion – kidney failure, dialysis, kidney transplantation, Role of ADH.

**Control and Co-ordination:** Nervous system of cockroach, Nervous system of human – central, peripheral & autonomic, transmission of nerve impulse, reflex action, sense organs (Eye and Ear).

**Human Endocrine System:** Endocrine glands (Name, Location, Hormones and their functions), hormones as messengers and regulators, feed back controls, hormonal disorders.

**Genetics:** Mendelism, linkage and crossing over, recombination, sex chromosomes, sex determination, sex linked inheritance, chromosomal aberrations (structural).

**Animal Reproduction and Human Development:** Types of reproduction – Asexual reproduction (Binary fission, multiple fission, budding), Sexual reproduction in human – male and female reproductive system, menstrual cycle.

Human development: Gametogenesis (spermatogenesis, oogenesis), fertilization, development upto 3 germ layers, fate of germ layers, extraembryonic membranes, structure and function of placenta.

Cellular growth: Hormonal control of growth, Types of regeneration and mechanism (in planaria), ageing (Senescence).

**Biology in Human welfare (Elementary idea):** Common problems of adolescence (drugs,

alcohols and tobacco), social and moral implications, mental and addictive disorders, risk of indiscriminate use of drugs and antibiotics.

Biotechnology: Animal tissue culture, bio-war, biopiracy, cloning and transgenic animals. Elementary idea - organ transplantations, immunity and immune disorders, vaccines and vaccination (recent advances).

Modern techniques in diseases diagnosis: Basic methods of estimation of haemoglobin, sugar and urea in blood, ELISA and WIDAL tests.

Basic principles of ECG, EEG, CT SCAN, MRI, Ultra Sound and Endoscopy, DNA Finger Printing.

Human Diseases: Types, Causes, diagnosis, prevention and treatments – AIDS, STD, Cancer and Diabetes.

## 7.2. SYLLABI FOR LATERAL ENTRY STREAM (DIPLOMA)

The syllabi given here for JEE-2014 (Lateral entry diploma holders in Engineering / Technology) is only illustrative and not exhaustive. Since JEE-2014 is conducted with a view to prepare a relative merit list only for admission, the decision of the JEE-2014 committee as regards to the scope of syllabi is final. This paper is common to all the discipline except Pharmacy.

### (A) BASIC ELECTRICAL ENGINEERING (40 Questions)

#### **Fundamentals:**

Concept of Source and Load, Ohm's Law, Concept of resistance, Series and Parallel DC circuits, Kirchhoff's Laws, Faraday's Laws of Electromagnetic Induction, Fleming's Left Hand Rule and Right Hand Rule.

#### **AC Theory:**

Generation of alternating emf, Difference between DC and AC, Amplitude, Cycle, Time period, Frequency, Phase, Phase Angle, Phase Difference, Instantaneous value, RMS value, Average value, Amplitude factor and Form factor, Phasor diagram representation of AC values, AC through pure resistance, inductance and capacitance, AC through RL, RC and RLC circuits, Impedance Triangle and Power Triangle.

#### **Generation of Electrical Power:**

Principle of operation of different electrical power generating plants such as Thermal, Hydro-Electric and Nuclear power plants with their block diagrams, Concept of single phase Transformer and its application.

#### **Conversion of Electrical Energy:**

DC machine and its main parts. DC generators: Principle of operation and emf equation. DC motors: Principle of operation, classification, torque equation and applied voltage  $V$ -back emf  $E_b$  relation. Starters used for DC motors. Use of different types of DC generators and motors. Principle of operation of three-phase and single-phase induction motors. Types and use of three-phase and single-phase induction motors.

#### **Wiring and Power billing:**

Types of wiring and their comparison, Layout of household wiring (single line diagram), Basic protective devices in household wiring, Calculation of Power used in small electrical appliances and installation, Calculation of Energy consumption in small electrical installations, Earthing installation, types (Pipe and Plate earthing) and uses.

#### **Measuring Instruments:**

Introduction to measuring instruments, Expression for Torque in measuring instruments, Use of PMMC and MI type of instruments( Ammeters and Voltmeters). Connection diagram of AC/DC ammeter, voltmeter, energy meter and wattmeter for single phase electrical system only.

#### **Storage Devices:**

Introduction to storage devices and their types. Charging, Discharging and Maintenance of Lead Acid battery.

## **(B) MATHEMATICS (40 Questions)**

**Algebra:** Definition of complex number, Conjugate of complex number, Modulus and amplitude of a complex number. Algebra of complex numbers. Cube root of unity and their properties, De'Moivre's theorem and its application, Permutation, Combination, Binomial Theorem for any rational index, Relationship between Binomial coefficients.

**Determinant and Matrices:** Properties of determinants. Cramer's Rule, Types of matrices, Transpose, Adjoint and inverse of a matrix upto third order. Solution of simultaneous equation by matrix method.

**Trigonometry:** Trigonometrical ratios, multiple and submultiple angles, solution of trigonometrical equations, Properties of triangles, Inverse circular function and its properties.

**Analytical Geometry:** Distance formula, Division formula, Area of trapezium, Area of Triangle, Equation of straight lines in different form, Distance of a point from a line, Equation of circle in different forms.

**Vector Algebra:** Definition, Algebra of vectors, Position Vector, Resolution of vector into components, Scalar and Vector product of two vectors and their application, scalar triple product and its application.

**Calculus:** Limit and continuity of function, Derivative of standard functions, Derivative of composite functions. Differentiation of implicit functions, Differentiation of function in parametric form, Differentiation using logarithm, Differentiation of a function with respect to another function, Successive differentiation in simple cases, Maxima, minima and point of inflection, Partial derivative, Euler's theorem for homogeneous functions.

Standard methods of integration (by parts, by substitution, by partial fraction etc.). Definite integrals and their properties. Area bounded by curves.

**Ordinary Differential Equation:** Order and degree of differential equation, formation of differential equation. Solution of first order and first degree differential equation.

**Coordinate Geometry of three Dimension:** Distance and Division formulae, Direction cosine and direction ratio of a line, condition of perpendicularity and parallelism, Equation of plane under different conditions, angle between two planes, Distance of a point from a plane, General equation of a sphere, Equation of a sphere with given diameter.

**Probability and Statistics:** Measures of central tendency (Mean, Median, Mode), Measures of dispersion (Mean Deviation, Standard Deviation and Variance), Definition of probability, equally likely, Mutually exclusive and independent events. Addition theorem of probability.

## **(C) ENGINEERING MECHANICS (40 Questions)**

### **Force and Moments**

Force and its effects, Classification of forces, Principle of Transmissibility, Principle of Superposition, Action and Reaction, Tension and Compression, Free Body Diagram.

Co-planer concurrent forces: Resultant of forces, Equilibrium of forces and equilibrant, Parallelogram law of forces and determination of the resultant of two concurrent forces, Components and resolve parts of a force, Principle of resolution of a force and any number of forces, Analytical determination of resultant of number of concurrent forces, Lami's Theorem, Triangle law of forces and polygon law of forces.

Coplanar non-concurrent forces: Moment of a force, Statement and prove of Varignon's theorem, Conditions of equilibrium, Determination of resultant of two like and unlike parallel forces, Couple and its moment, Various types of supports with their reactions, Simple problems on coplanar non concurrent forces with the help of free body diagram.

### **Center of Gravity and Moment of Inertia**

Centroid and Center of Gravity(C.G.), Expression for C.G. of straight line (uniform rod),triangle, rectangle,circular,semicircular lamina. Expression for C.G. of solids like hemisphere and cone (Expression only). Different types of engineering sections (symmetrical and non-symmetrical built up sections). Location of the C.G. of the above sections. Definition Moment of Inertia(M.I.) of

plain figure as second moment of area. Perpendicular axes theorem, parallel axis theorem. M.I. of plane lamina like rectangle, triangle, circle, and semicircle (from 1<sup>st</sup> principle) M.I. of different engineering sections.

### **Friction**

Frictional force, angle of friction, limiting friction, co-efficient of friction, Laws of Static Friction. Simple problems on ladder, Body on Inclined planes with applied force parallel to the plane and horizontal, Screw Jack.

### **Gear Drive**

Various types of gears, Gear terminology, Velocity ratio and expression for the velocity ratio for simple gears. Types of gear trains (simple and compound gear trains)

### **Simple Lifting Machine**

Definition of a machine. Simple and compound lifting machines. Mechanical Advantage (MA), Velocity Ratio (VR) and efficiency of lifting machine. Relationship between MA, VR and efficiency. Laws of machine, Friction in machines, Friction in terms of load and friction in terms of effort. Reversible machine and self-locking machine. Condition of reversibility of a machine. Velocity Ratio and efficiency of 1<sup>st</sup>, 2<sup>nd</sup> & 3<sup>rd</sup> system of pulleys; Simple and differential wheel & axle, Screw jack.

### **Simple Stress and Strain**

Stress, strain, Tensile, compressive and shear types of stress and strain, Hooke's Law of elasticity, Poisson's ratio, Elastic limit, Elastic Constants (E, G & K) relationship between E, G & K, Stress-strain curve and salient points on stress-strain curve for ductile material. Simple problems on stress and strain in case of material with uniform cross section.

### **Dynamics**

Kinematics and kinetics of a particle, Principle of Dynamics:-Newton's laws of motion, D'Alembert's Principle and its application. Motion of particle acted upon by a constant force. Engineering Application of Work, Power and Energy: Work done, force-displacement diagram, Work done in stretching a spring, Power, Indicated Power, Brake Power and efficiency. Kinetic and potential energy & its application, Simple Harmonic Motion (SHM) with examples. Free Vibration, amplitude,

frequency and time period in SHM, Velocity and acceleration of particle executing

SHM, application of SHM to engineering problems. Force, Momentum and Impulse, Conservation of energy and linear momentum, Collision of elastic bodies, Co-efficient of restitution (e), Velocity after impact. Impact of body with a fixed plane.

## **7.3 SYLLABI FOR LATERAL ENTRY STREAM (+3 Sc. / B.Sc.)**

### **7.3.1. +3 Sc. / B.Sc. - MATHEMATICS (30 Questions)**

**Algebra** : Mappings. Equivalence relations and partition. Congruence modulo n relation. Symmetric. Skew symmetric. Hermitian and skew Hermitian matrices. Elementary operations on matrices. Inverse of a matrix. Linear independence of row and column matrices. Row rank, column rank and rank of a matrix. Equivalence of column and row ranks. Eigenvalues, eigenvectors and the characteristic equation of a matrix. Cayley Hamilton theorem and its use in

finding inverse of a matrix. Applications of matrices to a system of linear (both homogenous and non-homogenous) equations. Theorems on consistency of a system of linear equations. Definition of a group with examples and simple properties. Subgroups. Generation of groups. Cyclic groups. Coset decomposition. Lagrange's theorem and its consequences. Fermat's and Euler's theorems. Homomorphism and isomorphism. Normal subgroups. Quotient groups. The fundamental theorem of homomorphism. Permutation groups. Even and odd permutations. The alternating groups  $A_n$ . Cayley's theorem. Introduction to rings, subrings, integral domains and fields. Characteristic of a ring.

**Differential Calculus** : Definition of the limit of a function. Basic properties of limits. Continuous functions and classification of discontinuities. Differentiability. Successive differentiation. Leibnitz theorem. Maclaurin and Taylor series expansions. Asymptotes. Curvature. Tests for concavity and convexity. Points of inflexion. Multiple points. Tracing of curves in Cartesian and polar coordinates.

**Integral Calculus** : Integration of irrational algebraic functions and transcendental functions. Reduction formulae. Definite integrals. Quadrature. Rectification. Volumes and surfaces of solids of revolution.

**Ordinary Differential Equations:** Degree and order of a differential equation. Equations of first order and first degree. Equations in which the variables are separable. Homogeneous equations. Linear equations and equations reducible to the linear form. Exact differential equations. First order higher degree equations solvable for  $x, y, p$ . Clairaut's form and singular solutions. Geometrical meaning of a differential equation. Orthogonal trajectories. Linear differential equations with constant coefficient. Homogeneous linear ordinary differential equations.

Linear differential equations of second order. Transformation of the equation by changing the dependent variable / the independent variable. Method of variation of parameters. Ordinary simultaneous differential equations.

**Vector Analysis** : Scalar and vector product of three vectors. Product of four vectors. Reciprocal Vectors. Vector differentiation. Gradient, divergence and curl . Vector integration. Theorems of Gauss, Green, Stokes and problems based on these.

**Geometry** : General equation of second degree. Tracing of conics. System of conics. Confocal conics. Polar equation of a conic. The straight line and the plane, sphere, cone, cylinder.

**Advanced calculus** : Continuity. Sequential continuity. Properties of continuous functions. Uniform continuity. Chain rule of differentiability. Mean value theorems and their geometrical interpretations. Darboux's intermediate value theorem for derivatives. Taylor's theorem with various forms of remainders.

Limit and continuity of functions of two variables. Partial differentiation. Change of variables. Euler's theorem of homogeneous functions. Taylor's theorem for functions of two variables. Jacobians. Envelopes. Evolutes. Maxima, minima and saddle points of functions of two variables. Lagrange's multiplier method. Indeterminate forms.

Beta and Gamma functions. Double and triple integrals. Dirichlet's integrals. Change of order of integration in double integrals.

Definition of a sequence. Theorems of limits of sequences. Bounded and monotonic sequences. Cauchy's convergence criterion. Series of non-negative terms. Comparison tests. Cauchy's integral test. Ratio tests. Raabe's, logarithmic, De Morgan and Bertrand's tests. Alternating series. Leibnitz's theorem. Absolute and conditional convergence.

Series solutions of differential equations-Power series method, Bessel, Legendre and Hypergeometric equations. Bessel, Legendre and Hypergeometric functions and their properties-convergence, recurrence and generating relations. Orthogonality of functions. Orthogonality of Bessel functions and Legendere polynomials.

**Laplace Transformation** : Linearity of the Laplace transformation. Existence theorem for Laplace transforms. Lapalce transforms of derivatives and integrals. Shifting theorems. Differentiation and integration of transforms. Convolution theorem. Solution of integral equation and systems of differential equation using the Laplace transformation.

**Linear Algebra** : Vector space, Basics, Dimensions, Linear Independence and Dependence of vectors, Linear Transformation, Rank and Nullity, Range and Kernel.

**Numerical Analysis** : Solution of equations: Bisection, Secant, Regula falsi, Newton's Method, Roots of Polynomials.

**Interpolation**: Lagrange and Hermite Interpolation, Divided Difference Interpolation, Gauss Interpolation formula, Numerical Differentiation. Numerical Integration: Newton-Cotes formula, Gauss quadrature formula, Chebychev's Formulae.

### 7.3.2. +3 Sc. / B.Sc. PHYSICS (15 Questions)

**Mechanics** : laws of motion, motion in a uniform field, components of velocity and acceleration in different coordinate systems. Motion under a central force, Kepler's law, Gravitational law and field. Potential due to a spherical body, Gauss and Poisson equations for gravitational self-energy. System of particles, center of mass, equation of motion, conservation of linear and angular momenta, conservation of energy, elastic and inelastic collisions. Rigid body motion, rotational motion, moment of inertia and their products.

**Oscillations** : Harmonic oscillations, kinetic and potential energy, examples of simple harmonic oscillations, spring and mass system, simple and compound pendulum, torsional pendulum. Superposition of two simple harmonic motions of the same frequency along the same line, interference, superposition of two mutually perpendicular simple harmonic vibrations of the same frequency, Lissajous figures, case of different frequencies.

**Motion of charged particles in electric and magnetic fields** : E as an accelerating field, electron gun, case of discharge tube, linear accelerator, E as deflecting field-CRO, sensitivity. Properties of Matter: Elasticity, small deformations, Hooke's law, elastic constants for an isotropic solid, beams supported at both the ends, cantilever, torsion of a cylinder, bending moments and shearing forces. Bernoulli's theorem, viscous fluids, streamline and turbulent flow. Poiseulle's law. Capillarity, tube of flow, Reynold's number, Stokes law. Surface tension and surface energy, molecular interpretation of surface tension, pressure across a curved liquid surface, angle of contact and wetting.

**Electrostatics** : Coulomb's law (in vacuum) expressed in vector forms, calculation of E for simple distributions of charge at rest, dipole and quadrupole fields Work done on a charge in an electrostatic field expressed as a line integral, conservative nature of the electrostatic field. Electric potential,  $E = -dV/dx$ , Torque on a dipole in a uniform electric field and its energy, flux of the electric field, Gauss' law and its application for finding E for symmetric charge distributions, Gaussian pillbox, fields at the surface of a conductor. Screening of electric field by a conductor. Capacitors, electrostatic energy, force per unit area of the surface of a conductor in an electric



field.

**Electric Currents:** Steady current, Current density vector  $J$ , non-steady currents and continuity equation, Kirchoff's law and analysis of multi-loop circuits, rise and decay of current in LR and

CR circuits, decay constants, transients in LCR circuits, AC circuits, Complex numbers and their applications in solving AC circuit problems, complex impedance and reactance, series and parallel resonance, Q factor, power consumed by an AC circuit, power factor.

**Magnetostatics :** Force on a moving charge, Lorentz force equation and definition of  $B$ , force on a straight conductor carrying current in a uniform magnetic field, torque on a current loop, magnetic dipole moment, Biot and Savart's law, calculation of  $B$  in simple geometric situations, Ampere's law  $\nabla \cdot B=0, \nabla \times B, = \mu_0 J$ , field due to a magnetic dipole.

**Time Varying Fields :** Electromagnetic induction, Faraday's law, electromotive force  $e=\sigma.E.dr$ , Integral and differential forms of Faraday's law, mutual and self inductance, transformers, energy in a static magnetic field, Maxwell's displacement current, Maxwell's equations, electromagnetic field, energy density.

**Electromagnetic Waves:** The wave equation satisfied by  $E$  and  $B$ , plane electromagnetic waves in vacuum, Poynting's vector.

**Kinetic theory of Matter:** Real gas: Van der Waals gas, equation of state, nature of Van der Waals forces, comparison with experimental P-V curves. The critical constants, distinction between gaseous and vapour state, Joule expansion of ideal gas, and of a Van der Waals gas, Joule coefficient, estimates of J-T cooling.

**Thermodynamics :** Blackbody radiation: energy distribution in blackbody spectrum. Planck's quantum postulates, Planck's law. Interpretation of behaviour of specific heats of gases at low temperature.

**Kinetic Theory of Gases :** Maxwellian distribution of speeds in an ideal gas: distribution of speeds and of velocities, distinction between mean, rms and most probable speed values.

**Physical Optics :** The principle of superpositions, Interference of a light, double-slit interference, coherence requirement for the sources, optical path retardation, lateral shift of fringes, Localized fringes: thin films, Michelson interferometer, Fresnel diffraction: Fresnel half-period zones, plates, straight edge, rectilinear propagation. Fraunhofer diffraction : Diffraction of a single slit, the intensity distribution, diffraction at a circular aperture and a circular disc.

Diffraction gratings: Diffraction at  $N$  parallel slits, intensity distribution, plane diffraction grating, polarization of transverse waves, plane, circular and elliptically polarized light. Polarization by reflection and refraction. Double reflection and optical rotation: Refraction, in uniaxial crystals, its electromagnetic theory. Phase retardation plates, double image prism, rotation of plane of polarized light, origin of optical rotation in liquids and in crystals.

**Quantum Mechanics:** Origin of the quantum theory: failure of classical physics to explain the phenomena such as blackbody spectrum, photoelectric effect, Ritz combination principle in spectra, stability of an atom, Planck's radiation law, Einstein's explanation of photoelectric effect, Bohr's quantization of angular momentum and its applications to hydrogen atom, limitations of Bohr's theory. Wave particle duality and uncertainty principle: de Broglie's hypothesis for matter waves, the concept of wave and group velocities, evidence for diffraction and interference of particles, experimental demonstration of matter waves. Consequence of de Broglie's concepts; quantization in hydrogen atom; quantized energy levels of a particle in a box, wave packets, Heisenberg's uncertainty relation for  $p$  and  $x$ , its extension to energy and time. Consequence of the uncertainty relation: gamma ray microscope, diffraction at a slit, particle in a box, position of electron in a Bohr orbit. Quantum Mechanics: Schrodinger's equation. Postulatory basis of quantum mechanics, operators, expectation values, transition probabilities, applications to particle in a one dimensional box, harmonic oscillator, reflection at a step potential, transmission across a potential barrier.

**Weak spectra :** continuous X-ray spectrum and its dependence on voltage, Characteristics X-rays. Moseley's law, Raman effect, Stokes and anti-Stokes lines, fission and fusion (concepts),

energy production in stars by p-p and carbon cycles (concepts). Cyclotron.

**Solid State Physics:** X-ray diffraction, Bragg's law,

**Magnetism:** Atomic magnetic moment, magnetic susceptibility, Dia-Para-, and Ferromagnetism, Ferromagnetic domains, Hysteresis.

**Band Structure:** Energy bands, energy gap, metals, insulators, semiconductors.

**Solid State Devices:** Semiconductors - Intrinsic semiconductors, electrons and holes, Fermi level. Temperature dependence of electron and hole concentrations. Doping: impurity states, n and p type semiconductors.

**Semiconductor devices :** p-n junction, majority and minority charge carriers, junction diode, Zener diode.

**Electronics:** Power supply : diode as a circuit element, load line concept, rectification, ripple factor, Zener diode, voltage stabilization, IC voltage regulation, characteristics of a transistor in CB, CE and CC mode.

**Field effect transistors:** JFET volt-ampere curves, biasing JFET, RC coupled amplifier, gain, frequency response, input and output impedance.

### 7.3.3 +3 Sc. / B.Sc CHEMISTRY (15 Questions)

**Thermodynamics :** Definition of thermodynamic terms, systems, surroundings etc. Types of systems, intensive and extensive properties, state and path functions and their differentials, thermodynamic processes, concept of heat and work. First law of thermodynamics, statement, definition of internal energy, enthalpy, heat capacity, heat capacity at constant volume, constant pressure and their relation, Joule's law, Joule-Thomson coefficient and inversion temperature, calculation of  $w$ ,  $q$ ,  $U$ ,  $H$ , for the expansion of ideal gases under isothermal and adiabatic conditions for reversible processes, Workdone in irreversible process.

**Thermochemistry :** standard state, standard enthalpy of formation, Hess's law of heat of summation and its application, heat of reaction at constant pressure and constant volume, enthalpy of neutralization, bond dissociation energy and its calculation from thermochemical data, temperature dependence of enthalpy. Kirchoff's equation.

**Chemical equilibrium :** Equilibrium constant and free energy. Derivation of law of mass action (Study of homogeneous and heterogeneous equilibria). Le chatelier's principle.

**Phase equilibrium:** Statement and meaning of the terms - phase, component and degree of freedom, derivation of Gibbs phase rule, phase equilibrium of one component system - water and sulphur system.

**Electrochemistry-I :** Electrical transport-conduction in metals and in electrolyte solution, specific conductance and equivalent conductance, measurement of equivalent conductance, variation of equivalent and specific conductance with dilution, migration of ions and Kohlrausch law, Arrhenius theory of electrolytic dissociation and its limitations, weak and strong electrolytes, Ostwald's dilution law, its uses and limitations. Application of conductivity measurements, determination of degree of dissociation, determination of  $K_a$  of acids, Determination of solubility product of a sparingly soluble salt, conductometric titration.

**Electrochemistry-II :** Types of reversible electrodes- gas metal ion, meta-metal ion, metal-insoluble salt-anion and redox electrodes. Electrode reactions, Nernst equation, derivation of cell EMF and single electrode potential, standard hydrogen electrodes-reference electrodes, standard electrode potentials, sign conventions, electrochemical series and its significant, EMF of a cell and its measurements. Computation of cell EMF, concentration of cell with and without transport, liquid junction potential, definition of  $H$ , and  $K_a$ , determination of  $H$  using hydrogen electrode, buffers-mechanism of buffer action, Henderson equation. Hydrolysis of salts (quantitative treatment), determination of  $H$ ,  $K_a$ ,  $K_w$  and  $K_h$  by emf methods.

**Atomic Structure** : Idea of de Broglie matter waves, Heisenberg uncertainty principle, atomic orbitals, Schrodinger wave equation (Mathematical derivations excluded) significance of quantum numbers, shapes of s,p,d orbitals. Aufbau and Pauli exclusion principles, Hund's multiplicity rule. Electronic configurations of the elements.

**Periodic Properties** : Atomic and ionic radii, ionization enthalpy and electron – gain enthalpy, electronegativity-definition, methods of determination or evaluation, trends in periodic table and applications in predicting and explaining the chemical behaviour.

**Chemical Bonding** : Covalent Bond - valence bond theory and its limitations, directional characteristics of covalent bond, various types of hybridization and shapes of simple inorganic molecules and ions. Valence shell electron pair repulsion, (VSEPR) theory of  $\text{NH}_3$ ,  $\text{H}_3\text{O}^+$ ,  $\text{SF}_4$ ,  $\text{ClF}_3$ ,  $\text{ICl}_2$  and  $\text{H}_2\text{O}$ . MO theory, homonuclear and heteronuclear ( $\text{CO}$  and  $\text{NO}$ ) diatomic molecules.

**s-Block Elements** : Comparative study, diagonal relationships, salient features of hydrides, solvation and complexation tendencies including their function in biosystems,

**p-Block Elements** : Comparative study (including diagonal relationship) of groups 13-17 elements, compounds like hydrides, oxides, oxyacids and halides of groups 13-16, hydrides of boron-diborane, borazine, borohydrides, fullerenes, carbides, fluorocarbons, silicates (structural principle), basic properties of halogens, interhalogen compounds.

**Chemistry of Noble Gases** : Chemical properties of the noble gases, chemistry of xenon, structure and bonding in xenon compounds (fluorides and oxides), Chemistry of elements of first transition series. Characteristic properties of d-block elements.

Properties of the elements of the first transition series, their binary compounds and complexes illustrating relative stability of their oxidation states, coordination number and geometry.

**Coordination Compounds** : Werner's coordination theory and its experimental verification, effective atomic number concept, chelates, nomenclature of coordination compounds, isomerism in coordination compounds (4 and 6 only) valence bond theory of transition metal complexes.

**Acids and Bases** : Arrhenius, Bronsted-Lowry, Lewis concepts of acids and bases.

**Structure, bonding and mechanism of Organic reactions:**

Inductive effect, resonance, steric effect, influence of these effects on acidity, basicity and dipole moments, reactive intermediate- carbocations, carbanions, free-radicals and carbenes - formation, stability and structure, types and mechanism of organic reactions-  $\text{SN}_1$ ,  $\text{SN}_2$ ,  $\text{SE}_1$ ,  $\text{SE}_2$ ,  $\text{E}_1$ ,  $\text{E}_2$ ,  $\text{AdE}$ ,  $\text{AdN}$ ,

**Stereochemistry of Organic compounds:** Concept of isomerism, types of isomerism, optical isomerism, elements of symmetry, molecular chirality, enantiomers, stereogenic center, optical activity, properties of enantiomers, chiral and achiral molecules with two stereogenic centers, diastereomers, meso compounds, relative and absolute configuration, sequence rules, D-L, R-S, systems of nomenclature, geometric isomerism, determination of configuration of geometric isomers, E-Z system of nomenclature, conformational isomerism, conformational analysis of ethane and n-butane, conformations of cyclohexanes, axial and equatorial bonds, difference between conformation and configurations.

### 7.3.4 +3 Sc. / B.Sc. Biology (30 Questions)

#### 7.3.4.1 +3 Sc. / B.Sc. BOTANY (15 Questions)

**Microbes** : Viruses and Bacteria : General account of viruses and bacteria – structure, nutrition, reproduction and economic importance.

**Diversity of seed plants** : Characteristics of seed plants; evolution of the seed habit; seed plants with (angiosperms) and without (gymnosperms) fruits. Morphology of vegetative and reproductive parts; anatomy of root, stem and leaf; Reproduction and life cycle of *Cycas*, *Pinus* and *Ephedra*. Botanical nomenclature: Principles and rules; taxonomic ranks; type concept; principle of priority. Classification of angiosperms; salient features of the systems proposed by Bentham and Hooker and Engler and Prantle. Major contributions of cytology, phytochemistry and taxometrics to taxonomy. Diversity of flowering plants as illustrated by members of the families: Ranunculaceae, Brassicaceae, Malvaceae, Rutaceae, Fabaceae, Apiaceae, Acanthaceae, Apocynaceae, Asclepiadaceae, Solanaceae, Lamiaceae, Chenopodiaceae, Euphorbiaceae, Liliaceae and Poaceae.

**Development & reproduction in flowering plants** : The basic body plan of a flowering plant – modular type of growth. The shoot systems : the shoot apical meristem and its histological organization; vascularisation of primary shoot in monocotyledons and dicotyledons; formation of internodes, branching pattern; monopodial and sympodial growth; cambium and its functions; formation of secondary xylem; a general account of wood structure in relation to conduction of water and minerals; characteristics of growth rings, sapwood and heart wood; secondary phloem – structure – function relationships; Leaf : origin, development,

arrangement and diversity of size and shape; internal structure in relation to photosynthesis and water loss; adaptations to water stress; senescence and abscission. The root system : the root apical meristem; differentiation of primary and secondary tissues and their roles; structural modification for storage, respiration, reproduction and for interaction with microbes.

Flower : a modified shoot; functions; structure of anther and pistil; the male and female gametophytes; types of pollination; pollen-pistil interaction, self incompatibility; double fertilization; formation of seed – endosperm and embryo; fruit development and maturation.

**Cell Biology & Genetics** : Structure and function of nucleus : Ultrastructure of nuclear membrane & nucleolus. Chromosome organization : Morphology; centromere and telomere; Chromosome alterations : deletions, duplications, translocations, inversions; Variations in chromosome number : aneuploidy, polyploidy; Sex chromosomes. DNA, the genetic materials : DNA structure; replication; DNA- protein interaction; the nucleosome model; genetic code; satellite and repetitive DNA. Cell division : mitosis; meiosis. Genetic inheritance : Mendelism Linkage analysis; Allelic and non-allelic interactions. Gene expression : Structure of gene; transfer of genetic information; transcription, translation. Genetic variation : Mutations, spontaneous and induced; transposable genetic elements; DNA damage and repair. Extranuclear genome : Presence and function of mitochondrial and plastid DNA. Structure and function of other organelles : Golgi, ER, peroxisomes, vacuoles. The cell envelopes : Plasma membrane; functions; the cell wall.

**Biochemistry**: Basics of enzymology: Discovery and nomenclature; characteristics of enzymes; concept of holoenzyme, coenzyme and cofactors; regulation of enzyme activity; mechanism of enzyme action. Photosynthesis: Significance; historical aspects; photosynthetic pigments; action spectra and enhancement effects; Z-scheme; photophosphorylation; Calvin cycle; C4 pathway; CAM plants; photorespiration. Respiration: ATP – the biological energy currency; aerobic and anaerobic respiration; Glycolysis, kreb's cycle; electron transport system and oxidative phosphorylation (chemi-osmotic theory). Nitrogen and lipid metabolism : Biology of nitrogen fixation; importance of nitrate reductase and its regulation. Structure and function of lipids; fatty acids biosynthesis; oxidation; saturated and unsaturated fatty acids; storage and mobilization of fatty acids. The concept of photoperiodism; physiology of flowering; florigen concept; Physiology of senescence, fruit ripening; Plant hormones – auxins, gibberllins, cytokinins, abscisic acid and ethylene: history of their discovery biosynthesis and mechanism of action.

**Biotechnology** : Functional definition; basic aspects of plant tissue culture; cellular totipotency, differentiation and morphogenesis; Genetic engineering: Tools and techniques of recombinant DNA technology; cloning vectors; genomic and c-DNA-library transposable elements; techniques of gene mapping and chromosome walking. Biology of Agrobacterium; Vectors for gene delivery and marker genes; salient achievements in crop biotechnology.

**Ecology** : Plants and environment : Atmosphere (gaseous composition), water (properties of water cycle), light (global radiation, photosynthetically active radiation), temperature, soil (development, soil profiles, physico- chemical properties), and biota. Population ecology : Growth curves; ecotypes; ecads. Community ecology : Community characteristic, frequency, density, life forms, biological spectrum; ecological succession. Ecosystems : Structure; abiotic and biotic components; food chain, food web, ecological pyramids, energy flow; biogeochemical cycles of carbon, nitrogen and phosphorus. Biogeographical regions of India : Vegetation types of India: Forests and grasslands.

**Economic Botany** : Food plants : Rice, wheat, maize, potato, sugarcane. Fibers : Cotton and jute. Vegetable oils : Groundnut, mustard and coconut. General account of sources of firewood, timber and bamboos: Spices: General account. Medicinal plants: Beverages: (Tea and coffee), Rubber.

#### 7.3.4.2 +3 Sc. / B.Sc. ZOOLOGY (15 Questions)

**Diversity-I** : Principles of classification – salient features and classification upto orders in non-chordates. Structural organization in different classes of non-chordates. Protozoa – Type study (paramecium), parasitic protozoans. Porifera and coelenterata – Type study (Sycon and Aurelia),

Coral and coral reefs. Platyhelminthes and Nematelminthes– Type study (Fasciola, Taenia) and parasitic adaptations. Annelida – Type study (Earthworm). Mollusca – Type study (Pila). Arthropoda – Crustacean larval forms, Type study (Prawn).

**Cell Biology** : Cell Theory. Structure of prokaryotic and eukaryotic cells. Cellular organelles. Role of mitochondria in cellular energy transactions. Membrane transport of small molecules. Cell signaling. Cytoskeleton. Cell cycle. The mechanics of cell division (Mitosis and Meiosis). Cell junctions, cell adhesion. Biology of cancer.

**Animal Diversity-II** : Origin and general characters of chordates. Protochordates – Classification upto orders, structural organization of Amphioxus, Balanoglossus and Herdmania. Agnatha – Classification upto orders. Fishes – Classification upto orders, Type study (Scoliodon). Amphibians – Origin of land vertebrates, classification upto orders, parental care. Reptiles – Classification upto orders, poisonous snakes of India. Bird migration, principles of bird flight, origin of birds. Mammals – Origin, classification and general characters. Comparative anatomy of systems (e.g. kidney, heart).

**Physiology** : Aim and Scope of Physiology – Cell Physiology, mammalian physiology, comparative physiology and applied physiology. Chemical foundations of physiology – solutions, osmotic pressure, diffusion, pK and pH, buffers. Biomolecules – Carbohydrates, lipids, proteins, nucleic acids. Blood – Composition and function of blood; Blood groups; Blood coagulation;. Heart – Structure; origin, conduction and regulation of heart beat;. Respiration – Mechanism and control of breathing. Digestion and absorption of dietary components. Structure and function of kidney, physiology of urine formation. Physiology of contraction of skeletal and smooth muscle. Physiology of nervous conduction. Endocrine glands (Pituitary, Thyroid). Nature of enzymes.

**Vertebrate Endocrinology and Reproductive Biology** : Classification of hormones. Hormonal regulation of physiological processes – basic concepts. Hormones and human health – production of hormones as pharmaceuticals. Reproductive cycles in vertebrates. Fertilization in

vivo and in vitro. Embryo transfer technology. Sex determination and sex differentiation. Endocrine disorders – brief description.

**Evolution & Behaviour** : Concept of Evolution. Origin of life on Earth. Origin of prokaryotic and eukaryotic cells. Variations, mutations, recombination, Isolation, Natural selection. Concept of species and speciation. Mimicry. Population genetics, Genetic drift, Hardy-Weinberg Law. Evolution of Man. Introduction to Ethology – animal sense organs. Patterns of behaviour. Reproductive behavioural patterns. Social organization in animals, social interactions among individuals. Learning behaviour in animals. Drugs and behaviour.

## 7.4 SYLLABI FOR LATERAL ENTRY (PHARMACY)

### 7.4.1 PAPER for Pharmacy (60 Questions)

The course content is same as the syllabus of part-I and part-II of Diploma in Pharmacy as per the Education Regulation – 1991 of Pharmacy Council of India.

## 7.5. SYLLABUS FOR MCA STREAM

### 7.5.1 MATHEMATICS (60 Questions)

**Logic** : Statement, Negation, Implication, Converse, Contrapositive, Conjunction, Disjunction, Truth Table. Different methods of proof, Principle of Mathematical induction.

**Algebra of sets** : Set operation, Union, Intersection, Difference, Symmetric difference, Complement, Venn diagram, Cartesian product of sets, Relation and functions, Equivalence relation, Kinds of functions and their domain and range, Composite function, Inverse of a function.

**Number system** : Real numbers (algebraic and order properties, rational and irrational numbers), Absolute value, Triangle inequality,  $AM \geq GM$ , Inequalities (simple cases), Complex numbers, Algebra of complex numbers, Conjugate and square root of a complex number, Cube roots of unity, De Moivre's theorem with simple application. Permutations and Combinations - simple applications, Binomial theorem for positive integral index, Identities involving binomial coefficients.

**Determinants and matrices** : Determinants of third order, Minors and cofactors, Properties of determinants, Matrices upto third order, Types of matrices, algebra of matrix, adjoint and inverse of matrix, Application of determinants and matrices to the solution of linear equations (in three unknowns).

**Trigonometry** : Compound angles, Multiple and Submultiple angles, Solution of trigonometric equations, Properties of triangles, Inverse circular function, Sum and product of sine and cosine functions.

**Co-ordinate geometry of two dimensions** : Straight lines, Pairs of straight lines, Circles, Equations of tangents and normals to a circle, Equations of parabola, Ellipse and hyperbola in simple forms, their tangents and normals. Condition of tangency. Rectangular and Conjugate hyperbolas.

**Coordinate geometry of three dimensions** : Distance and Division formulae, Direction cosines and direction ratios, Projection, Angle between two planes, Angle between a line and a plane. Distance of a point from a line and a plane. Equation of a sphere – general equation, Equation of sphere when end points of diameter are given.

**Vectors** : Fundamentals, Dot and cross product of two vectors, Scalar triple product and vector triple product, Simple application of different products.

**Differential calculus:** Concept of limit, Continuity of functions, Derivative of standard Algebraic and Transcendental functions, Derivative of composite functions, functions in parametric form, Implicit differentiation, Successive differentiation (simple cases), Leibnitz theorem, Partial differentiation, Application of Euler's theorem, Derivative as a rate measure, Increasing and decreasing functions, Maxima and Minima, Indeterminate forms, Geometrical application of derivatives such as finding tangents and normals to plane curves.

**Integral calculus:** Standard methods of integration (substitution, by parts, by partial fraction, etc), Integration of rational, irrational functions and trigonometric functions. Definite integrals and properties of definite integrals, Areas under plane curves.

**Differential equations** : Definition, order, degree of a differential equation, Formation of a differential equation, Solution of a differential equations of the following types.

- (i)  $dy/dx = f(x)$
- (ii)  $dy/dx = f(x) g(y)$
- (iii)  $d^2y/dx^2 = f(x)$

**Probability and statistics:** Average (mean, median and mode). Dispersion (standard deviation and variance), Definition of probability, Mutually exclusive events, Independent events, Compound events, Conditional probability, Addition theorem.

**Number system** : Decimal, binary, octal, hexadecimal numbers and their conversion.

## 7.5.2 COMPUTER AWARENESS (60 Questions)

### COMPUTER AWARENESS:

**Introduction to Computer:** Brief history of Computers, Components of a Computer, Computer related general knowledge, Application of Computers, Classification of Computers, Windows.

**Computer Arithmetic:** Number System with general base, Number base conversion, Elementary arithmetic operation.

**C Language:** Keywords, Constants, Variables, Identifiers, operators, statements. Writing simple C program.

Arithmetic and logical expression, simple if, nested if, if-else-ladder, conditional operators, switch case, for, while and do while loops.

Concept of functions in C.

## 7.6 SYLLABUS FOR MBA/PGDM/PGCM/PGDM (Executive) 120 questions

Questions will be meant to measure a person's general Entrance test in the following aspects:

### No. of Questions

Verbal reasoning	40
Analytical reasoning	40
General Knowledge	10
Comprehension	20
Computer and Business fundamentals	10

### 7.6.1 Sample Questions :

A sample of questions is being provided for making the candidates aware of the style and difficulty level of the questions. The topics covered here in sample are not true indication of the syllabus and the test may contain questions from all related areas under different sections. The samples are given primarily to help the candidates understand the pattern of the test.

#### Section A : Verbal Reasoning

1. Identify the odd word
  - A. Sweep
  - B. wipe
  - C. Scrub
  - D. Stain
2. The place where bricks are baked
  - A. Foundry
  - B. Mint
  - C. Cemetery
  - D. Kiln
3. My watch is 6 minutes fast and the train which should have arrived at my station at 11.30 am was 5 minutes late. What time was it by my watch when the train arrived?
  - A. 11.41 am
  - B. 11.40 am
  - C. 11.38 am
  - D. Don't Know

#### Section B : Analytical Reasoning

1. Which of the following ratio is greatest?
  - A . 7:15
  - B. 15:23
  - C. 17:25
  - D. 21:29
2. If 6 men and 8 boys can do a piece of work in 10 days while 26 men and 48 boys can do the same in 2 days, the time taken by 15 men and 20 boys in doing the same type of work will be:
  - A . 4 days
  - B. 5 days
  - C. 6 days
  - D. 7 days
3. When the integer  $n$  is divided by 6, the remainder is 3. Which of the following is not a multiple of 6?
  - A .  $n-3$
  - B.  $n+3$
  - C.  $2n$
  - D.  $3n$

#### Section C : General Knowledge

1. The term 'steeplechase' is associated with
  - A. Horse racing
  - B. Boxing
  - C. Polo
  - D. Rowing
2. The first indigenously built missile boat is named as:
  - A. INS Mani
  - B. INS Shilpi
  - C. INS Bibhuti
  - D. INS Vikrant
3. Central Salt and Marine Chemicals Research Institute is located at
  - A. Ahmedabad
  - B. Bhavanagar
  - C. Gandhi Nagar
  - D. Panaji



### Section D : Comprehension

Speech is a great blessing but it can also be great curse, for which it helps us to make our intentions and desires known to our fellows, it can also, if we use it carelessly, make your attitude completely misunderstood. A slip of the tongue, the use of an unusual word, or of an ambiguous word and so on, may create an enemy where we had hope to win a friend. Again different classes of people use different vocabularies, and the ordinary speech of an educated man may strike an uneducated listener as pompous. Unwittingly we may use a word which bears a different meaning to our listener from what it does to men of our own class. Thus speech is not a gift to use lightly without thought, but one which demands careful handling. Only a fool will express himself alike to all kinds and conditions of men.

1. Speech can be a curse, because it can
  - A. reveal our intentions
  - B. lead to carelessness
  - C. hurt others
  - D. create misunderstanding
2. A 'slip of tongue' means something said
  - A. unintentionally
  - B. wrongly by chance
  - C. without giving proper thought
  - D. to hurt another person
3. The best way to win a friend is to avoid In speech
  - A. ambiguity
  - B. verbosity
  - C. pomposity
  - D. irony

### Section E : Computer & Business Fundamentals

1. The widely used code in data communication is
  - A. 8 bit ASCII
  - B. 7 bit ASCII
  - C. EBCDIC
  - D. None of these
2. Point of Sales terminal refers to
  - A. Terminal associated with MICR
  - B. Smart Terminal
  - C. Terminal associated with OCR
  - D. None of the above
3. How many Stock Exchanges are there in India?
  - A. 21
  - B. 22
  - C. 26
  - D. None of the above

## 7.7 SYLLABUS FOR Masters degree in Applied Management (MAM)- Dual Degree- 60 questions

Questions will be meant to measure a person's general Entrance test in the following aspects:

Section	No. of Questions
Verbal reasoning	15
Analytical reasoning	15
General Knowledge	15

## 7.8 Syllabus for MCA (Lateral Entry)

### 7.8.1 MATHEMATICS (60 Questions)

**Logic** : Statement, Negation, Implication, Converse, Contrapositive, Conjunction, Disjunction, Truth Table. Different methods of proof, Principle of Mathematical induction.

**Algebra of sets** : Set operation, Union, Intersection, Difference, Symmetric difference, Complement, Venn diagram, Cartesian product of sets, Relation and functions, Equivalence relation, Kinds of functions and their domain and range, Composite function, Inverse of a function.

**Number system** : Real numbers (algebraic and order properties, rational and irrational numbers), Absolute value, Triangle inequality,  $AM \geq GM$ , Inequalities (simple cases), Complex numbers, Algebra of complex numbers, Conjugate and square root of a complex number, Cube roots of unity, De Moivre's theorem with simple application. Permutations and Combinations - simple applications, Binomial theorem for positive integral index, Identities involving binomial coefficients.

**Determinants and matrices** : Determinants of third order, Minors and cofactors, Properties of determinants, Matrices upto third order, Types of matrices, algebra of matrix, adjoint and inverse of matrix, Application of determinants and matrices to the solution of linear equations (in three unknowns).

**Trigonometry** : Compound angles, Multiple and Submultiple angles, Solution of trigonometric equations, Properties of triangles, Inverse circular function, Sum and product of sine and cosine functions.

**Co-ordinate geometry of two dimensions** : Straight lines, Pairs of straight lines, Circles, Equations of tangents and normals to a circle, Equations of parabola, Ellipse and hyperbola in simple forms, their tangents and normals. Condition of tangency. Rectangular and Conjugate hyperbolas.

**Coordinate geometry of three dimensions** : Distance and Division formulae, Direction cosines and direction ratios, Projection, Angle between two planes, Angle between a line and a plane. Distance of a point from a line and a plane. Equation of a sphere – general equation, Equation of sphere when end points of diameter are given.

**Quadratic polynomials** : Roots of quadratic polynomial, Factorisation of quadratic polynomials, Maximum and minimum values of quadratic polynomials for all real values of the variable, sign of the quadratic polynomial for all real values of the variable, Solution of quadratic inequations.

**Sequence and Series** : Definition, Infinite geometric series, Arithmetico-geometric series, Exponential and Logarithmic series.

**Vectors** : Fundamentals, Dot and cross product of two vectors, Scalar triple product and vector triple product, Simple application of different products.

**Differential calculus**: Concept of limit, Continuity of functions, Derivative of standard Algebraic and Transcendental functions, Derivative of composite functions, functions in parametric form, Implicit differentiation, Successive differentiation (simple cases), Leibnitz theorem, Partial

differentiation, Application of Euler's theorem, Derivative as a rate measure, Increasing and decreasing functions, Maxima and Minima, Indeterminate forms, Geometrical application of derivatives such as finding tangents and normals to plane curves.

**Integral calculus:** Standard methods of integration (substitution, by parts, by partial fraction, etc), Integration of rational, irrational functions and trigonometric functions. Definite integrals and properties of definite integrals, Areas under plane curves.

**Differential equations :** Definition, order, degree of a differential equation, General and particular solution of a differential equation, Formation of a differential equation, Solution of a differential equations by method of separation of variables, Homogeneous differential equations of first order and first degree, Linear differential equations of the form  $dy/dx + p(x)y = q(x)$ , Solutions of differential equations of the form  $d^2y/dx^2 = f(x)$

**Probability and statistics:** Average (mean, median and mode). Dispersion (standard deviation and variance), Definition of probability, Mutually exclusive events, Independent events, Compound events, Conditional probability, Addition theorem.

**Number system :** Decimal, binary, octal, hexadecimal numbers and their conversion.

### 7.8.2. COMPUTER AWARENESS: 60 questions

**Introduction to Computer:** Brief history of Computers, Components of a Computer, Computer related general knowledge, Application of Computers, Classification of Computers, Windows.

**Computer Arithmetic:** Number System with general base, Number base conversion, Elementary arithmetic operation.

**C Language:** Keywords, Constants, Variables, Identifiers, operators, statements. Writing simple C program.

Arithmetic and logical expression, simple if, nested if, if-else-ladder, conditional operators, switch case, for, while and do while loops.

Concept of functions in C.

#### **C++ and data structure :**

Object oriented concepts and relationships, control structures, file concepts, Algorithm Analysis, linked list, stack, queue, binary tree, sorting and searching techniques.

#### **Fundamentals of computer Organisation and Networking :**

Sequential combinational circuits, Flip flops, Memory, K-map, Addressing modes, Fetch and execution cycle.

OSI model, topologies and protocols, Internet protocols, Ipv4/Ipv6, Introductory concept on Network Security.

#### **Introduction to Operating systems:**

Resource Management, types of operating systems, DOS and Unix commands,

#### **Logical reasoning and verbal abilities:**

Data Interpretations, Series brain teasing problem

### 7.9 Syllabus for PGAT-2014:

#### 7.9.1. All candidates seeking admission to 1st year Master Degree courses in Engineering/

**Technology/ Architecture will have to appear the respective courses of examination (Refer section 6.7.6: Admission to First Year M.Tech / M.Pharm / M.Arch ; Code [20 – 29]).**

**7.9.2. Candidates seeking admission to M.Pharm course will have to appear in Pharmacy (Refer section 6.7.6: Admission to First Year M.Tech / M.Pharm / M.Arch ; Code [30]).**

**7.9.3. Detailed Syllabi for the PGAT Test will be as per BPUT, Odisha Syllabus.**

**Note:** The Question will cover the entire course and will be multiple-choice type similar to the ones given in Section 7.5

**TABLES TO REFER FOR CHOICE FILLINGS DURING ONLINE APPLICATION  
SUBMISSION**

**TABLE-2 For Admission to First Year Programme (BHMS and BAMS, Pharmacy and MCA – Dual degree): Code (01 to 07)**

<b>Qualifying Exam.</b>	<b>Course</b>	<b>Course Code</b>
<b>10 + 2</b>	BHMS and BAMS( Ayurvedic and Homeopathy)	01
	Pharmacy only	02
	MCA – Dual degree	03
	Pharmacy and (BHMS and BAMS)	04
	Pharmacy and MCA – Dual degree	05
	(BHMS and BAMS) and MCA – Dual degree	06
	(BHMS and BAMS) and MCA – Dual degree and Pharmacy	07

**TABLE – 3 (A)**

**For Admission to First year MBA /MCA /PGDM/ PGCM/ PGDM (Executive) Programme: Code (30,31,32)**

<b>Qualifying Exam.</b>	<b>Course</b>	<b>Course Code</b>
BACHELOR DEGREE	Entrance Test for MBA, PGDM, PGCM and PGDM(Executive).	30
	MCA	31
	Second year MCA (Under Lateral Entry)	32

**TABLE-3(B)**

<b>Qualifying Exam.</b>	<b>Course</b>	<b>Course Code</b>
BACHELOR DEGREE	MBA/ PGDM/ PGCM/ PGDM (Executive ) and MCA	33
	MBA/ PGDM/ PGCM/ PGDM (Executive ) and LE-MCA	34
	MBA/ PGDM/ PGCM/ PGDM (Executive ) and M.Tech	35

**TABLE - 4****For Admission to Second Year Programme (Under Lateral Entry) : Code (51 to 73)**

<b>Qualifying Examination: Diploma in</b>	<b>Qualifying Code</b>
Applied Electronics & Instrumentation	51
Architecture Asstt.	52
Automobile Engineering	53
BioTechnology	54
Ceramic Engineering	55
Chemical Engineering	56
Civil Engineering / Rural Technology	57
Computer Application & Programming /Computer Science and Engineering/ Information Technology	58
Drilling Technology	59
Electrical Engineering	60
Electronics and Telecommunication Engineering	61
Food Technology / Food Processing	62
Garment Design and Fashion Technology	63
Mechanical Engg. / Tool and Die Making	64
Metallurgical Engineering	65
Mining Engineering	66
Plastic Mould Engineering	67
Print Technology	68
Textile Engineering	69
Mechatronics	70
Sound Engineering	71
Other Diploma courses in Engineering which is not mentioned above	72
Pharmacy	73

**TABLE – 5****For Admission to Second Year Programme Under Lateral Entry for +3 Sc / B.Sc. with mathematics as subject at XII standard Scheme : Code (74)**

<b>Qualifying Examination</b>	<b>Qualifying Code</b>
+3 Sc / B.Sc. with mathematics as subject at XII standard	74

**TABLE – 6****For Admission to First Year M.Tech / M.Pharm / M.Arch: Code (19 – 30)**

<b>Entrance Examination Code for PGAT</b>	<b>Test code</b>
Industrial Engineering	18
Plastic Engineering / Polymer Nano Technology	19
Civil Engineering	20
Electronics & Communication Engg / Electronics & Telecommunication Engg / Electronics & Instrumentation Engineering	21
Electrical Engineering	22
Computer Science Engineering / Information Technology	23
Mechanical Engineering	24
Biotechnology Engineering	25
Chemical Engineering	26
Environmental Science & Engineering	27
Architecture	28
Pharmacy ( B Pharma)	29

**TABLE-7****For Admission to First year Masters degree in Applied Management (MAM) Programme: Code (36)**

<b>Qualifying Examination</b>	<b>Course</b>	<b>Qualifying Code</b>
10+2	Masters degree in Applied Management (MAM)	36

**TABLE- 8****List of OJEE-2014 Centres with Centre Code**

<b>Place of Centre</b>	<b>Code</b>	<b>Place of Centre</b>	<b>Code</b>
Angul	11	Jeypore	21
Balasore	12	Jharsuguda	22
Baripada	13	Kendrapara	23
Bhawanipatna	14	Keonjhar	24
Berhampur	15	Phulbani	25
Bhubaneswar	16	Puri	26
Bolangir	17	Rayagada	27
Cuttack	18	Rourkela	28
Dhenkanal	19	Sambalpur	29
Jagatsinghpur	20	Sarang	30

**TABLE-9****Mother Tongue:**

Assamese	01	Odia	10
Bengali	02	Punjabi	11
English	03	Sanskrit	12
Gujarati	04	Sindhi	13
Hindi	05	Tamil	14
Kannada	06	Telugu	15
Kashmiri	07	Urdu	16
Malayalam	08	Others	17
Marathi	09		

**TABLE - 10****Residence District**

<b>District's Name</b>	<b>Code</b>	<b>District's Name</b>	<b>Code</b>
Angul	01	Kandhamal	16
Balasore	02	Kendrapara	17
Bargarh	03	Keonjhar	18
Bhadrak	04	Khurda	19
Bolangir	05	Koraput	20
Boudh	06	Malkanagiri	21
Cuttack	07	Mayurbhanj	22
Deogarh	08	Nabarangpur	23
Dhenkanal	09	Nayagarh	24
Gajapati	10	Nuapada	25
Ganjam	11	Puri	26
Jagatsingpur	12	Raygada	27
Jajpur	13	Sambalpur	28
Jharsuguda	14	Sonepur	29
Kalahandi	15	Sundergarh	30

**TABLE-11****Mapping course-wise for Lateral Entry (Engg.) admission**

<b>COLUMN-I</b>	<b>COLUMN-II</b>
<b>If the candidate has a Diploma in Engineering in the discipline:</b>	<b>He/she is eligible to be admitted to:</b>
Civil Engg./ Rural Technology / Architectural Assistantship & Town Planning	Civil Engineering /Environmental Engg / Biomedical Engg.
Mechanical Engg. / Tool & Die Making	Mechanical Engg./Manufacturing Sc. and Engineering / Bio-Medical Engg./ Production Engg. / Textile Engg./Aeronautical Engg.
Automobile Engineering	Mechanical Engg./ Automobile Engg./ Bio-Medical Engg. / Production Engg./ Aeronautical Engg.
Electrical Engineering.	Electrical Engg./ Electrical & Electronics Engg / Bio-Medical Engg./ Applied Electronics and Instrumentation/ Instrumentation and Electronics Engg.
Electronics & Telecommunication Engg./ Applied Electronics & Instrumentation.	Applied Electronics and Instrumentation/ Instrumentation and Electronics Engg. / Electronics and Communication Engg. / Electronics & Instrumentation Engineering / Electronics & Tele Communication Engineering/Bio-Medical Engg. / Electrical & Electronics Engg
Metallurgical Engineering / Ceramic Engineering	Metallurgical Engineering / Mineral Engg. /Bio-Medical Engg.
Mining Engineering	Mining Engineering / Bio-Medical Engg.



Chemical Engineering	Chemical Engineering / Environmental Engg. / Biotechnology / Bio-Medical Engg.
Food Technology / Food Processing.	Chemical Engineering / Biotechnology / Bio-Medical Engg.
Textile Technology	Textile Technology / Bio-medical Engg. / Mechanical Engg./ Production Engg.
Computer Science & Engg. / Computer Application Programming / Information Technology	Computer Science & Engineering / Computer Science / Computer Engineering / Information Technology / Bio-Medical Engg.
Drilling Technology.	Mining or mechanical Engineering / Bio-medical Engg.
Mechatronics	Mechanical / Bio-medical Engg / Applied Electronics and Instrumentation/ Instrumentation and Electronics Engg. / Electronics and Communication Engg. / Electronics and Telecommunication Engg./ Electronics & Instrumentation Engineering. / Automobile Engineering.
Biotechnology	Biotechnology / Bio-Medical Engg. / Chemical Engg.
Print Technology	Mechanical / Fashion Technology / Textile Technology / Bio-medical Engg./ Production Engineering / Chemical Engineering.
Plastic Mould Engineering	Plastics Engineering / Bio-medical Engg. / Mechanical / Production Engineering / Chemical Engineering.
Garment Design & Fashion Technology	Fashion Technology / Textile Technology / Bio-medical Engg.
Sound Engineering	Bio-medical Engg / Applied Electronics and Instrumentation/ Instrumentation and Electronics Engg. / Electronics and Communication Engg. / Electronics and Telecommunication Engg./ Electronics & Instrumentation Engineering.
Architectural Assistantship & Town Planning	Architecture (As per AICTE norm)
Textile Chemistry	Textile Technology / Chemical Engg., Bio-Technology.
Pharmacy	Pharmacy

**TABLE-12**

**Mapping course-wise for M.Tech admission:**

<b>Column-I</b>	<b>Column-II</b>
<i>If you have degree in Engineering in the Discipline</i>	<i>You are eligible to be admitted to 1st year Master Degree Courses</i>
B.Tech in Civil Engineering	Structural Engineering /Environmental Engineering.
B.Tech in Agricultural Engg / Civil Engg./ Electrical Engg./ Environmental Engg / Chemical Engg./ Mechanical Engg / Mining Engg. / Metallurgy Engg / Production Engg. And B.Tech in Biotechnology / Automobile Engg. OR M.Sc. In Environmental Science/	Environmental Engineering/ Environmental Science and Engineering (Part Time)

Chemistry / Earth Science / Life Science Microbiology and M.Sc in Physics /Geology.	
B.Tech in Chemical Engineering/ Leather Technology/Biotechnology /Industrial Biotechnology/Bio Chemical Engg./B.Pharm./M.Sc in Biotechnology, Biochemistry, Microbiology, BioPhysics, Biology, Botany, Zoology, Genetics, Agriculture and Veterinary Sc.	Biotechnology / Chemical Engineering
B.Tech in Electrical Engineering/ Electrical and Electronics Engineering	Power System Engineering/ Power Electronics and Drives/ Industrial Power Control and Drives (Part Time)/ Mechatronics /VLSI and Embedded Systems/VLSI & Embedded system Design.
B.Tech in Electronics / Electronics and Communication/ Electronics & Instrumentation/ Instrumentation &  Electronics/ Electrical and Electronics Engineering/Electronics and Telecommunication /Applied Electronics/M.Sc in Electronics.	Electronics and Telecommunication Engineering / Electronics & Communication Engineering / Electronics &Instrumentation / VLSI and Embedded  Systems / VLSI & Embedded system Design/ Communication Systems/ Wireless Communication System.
B.Tech in Mechanical Engineering, Electronics & Telecommunication Engineering / Electronics & Communication Engineering/Electronics & Instrumentation Engineering , Electronics and Instrumentation or Applied Electronics & Instrumentation.	Mechatronics
All branches of Engineering, MCA, M. Sc. In Information Technology and M. Sc in Computer Science	Computer Science and Engineering. / Information Technology.
B.Tech in Mechanical Engineering/ Manufacturing Engg./ Production Engg	Mechanical System Design and Dynamics / Mechanical System Design / Heat Power Engineering / Thermal Engineering / / Production Engineering / CAD-CAM/ Mechatronics
B.Tech in Metallurgy Engg/ Production Engg./Welding/Material Sc.	Production Engineering
B.Tech in Automobile Engineering	CAD-CAM
B.Tech in Mechanical Engineering/ Chemical Engineering/ Production Engineering/ Polymer/ Plastic Engineering/Technology OR M.Sc. in Polymer Science with Polymer Specialisation.	Plastic Engineering
B.Tech in Mechanical Engineering/ Chemical Engineering/ Polymer/ Plastic	Polymer Nano Technology

Engineering/Technology OR M.Sc. in Polymer Chemistry/Physics/Chemistry.	
All Branches of Engineering	Industrial Engineering and Management./ Industrial Engg.
B. Arch	M. Arch
Pharmacy	All Branches of M.Pharm.

### LIST OF TABLES SHOWING DIFFERENT COLLEGES FOR DIFFERENT COURSE

**TABLE-13 Private Colleges offering B.Pharm Programme**

SL No	Name of the College	Year of Establishment	Total No. of Seats
1	College of Pharmaceutical Science, Marine Drive Road Baliguali, Puri	2006	60
2	College of Pharmaceutical Sciences, Berhampur, Mohuda Ganjam	1979	60
3	Dadhichi College of Pharmacy, Vidya Vihar, Sundergram, Cuttack	2005	60
4	Gayatri College of Pharmacy, Gayatri Vihar, Jamadarpali Sambalpur	1999	60
5	Gayatri Institute of Science and Technology (GIST), Gyan Vihar, Rayagada, Gunupur	2004	60
6	HI-Tech College of Pharmacy, Pandara, Rasulgarh, Khurda Bhubaneswar	2009	60
7	IMT Pharmacy College, Sai Bihar , New Nabakalebara Road, Gopalpur, Puri	2007	60
8	Indira Gandhi Institute of Pharmaceutical Sciences, I.R.C. Village, Bhubaneswar	1994	60
9	Institute of Pharmacy & Technology, Salipur, Cuttack	1982	60
10	Jeypore College of Pharmacy, Rondapalli, Jeypore, Koraput,	2001	60
11	Kanak Manjari Institute of Pharmaceutical Sciences, Chhend Colony, Rourkela	1982	60
12	Roland Institute of Pharmaceutical Sciences, Khodasingi	1986	60
13	Royal College of Pharmacy & Health Science, Andhapasara Road	2002	60
14	Seemanta Institute of Pharmaceutical Sciences, Jharpokharia, Mayurbhanj	1982	60
15	Sri Jayadev College of Pharmaceutical Sciences, Naharkanta, Baliana, Khurda, Bhubaneswar.	1983	60
16	The Pharmaceutical College, Samaleswari Vihar, Tingipali, Mohada, Barpali		60

**TABLE - 14 Government Colleges offering MCA Programme**

S/N	Name of the College /University(GOVT.)	Year of Establishment	Total No. of Seats
1	Berhampur University, Bhanja Vihar		30
2	Centre for IT Education, Bhubaneswar (Self Sustaining Course )	2001	60
3	College of Engineering & Technology, Bhubaneswar	1982	30
4	Fakirmohan University, Balasore		30
5	Gangadhar Meher College (Autonomous), Sambalpur	1995	30
6	Indira Gandhi Institute of Technology, Sarang	1982	30
7	Institute of Management & Information Technology , Cuttack	1962	60
8	Khalikote College (Autonomous), Khalikot	1998	30
9	MPC (Auto) College, Takhatpur, Baripada		60
10	North Odisha University, Baripada		30
11	Ravenshaw University, Cuttack	1998	30
12	Utkal University, Vani Vihar	1990	30
13	Veer Surendra Sai University of Technology, Burla,	1956	30

**TABLE – 15 Private Colleges offering MCA Programme**

S/N	Name of the College	Year of Establishment	Total No. of Seats
1	Academy of Business Administration, Harida, Kuruda, Balasore	1993	60
2	Ajay Binay Institute of Technology, Sector-1, CDA, Cuttack	1998	60
3	Balasore College of Engineering and Technology, Sergarh Balasore	2001	60
4	Bhadrak Institute of Engineering & Technology, Barapada Bhadrak	1999	60
5	Bhubaneswar Engineering College(BEC), NK Nagar, Gramadiha,Pittapally Bhubaneswar	2008	60
6	BRM Institute of Management and Information Technology, Puba Sasan, Koushlya Ganga, Bhubaneswar	2007	60
7	C.V. Raman Computer Academy, Bidya Nagar, Mahura, Janla	2000	120
8	College of Engineering Bhubaneswar, Plot No-1(A),CNI Complex, Patia Chandrasekharpur,Bhubaneswar	2007	60
9	Dr. Ambedkar Memorial Institute of Information Technology, Jagda, Rourkela	2001	120
10	Gandhi Engineering College, Badaraghunathpur, Madanpur Off NH 5, On Gahira Square,Bhubaneswar	2006	60
11	Gandhi Institute for Technological Advancement (GITA), Badaraghunathpur, Madanpur, Jaanla, Bhubaneswar	2005	60
12	Gandhi Institute for Technology, Gramadiha, Gangapada, Janla, Khurda, Bhubaneswar	2006	60
13	Gandhi Institute of Advanced Computer & Research, Prajukti Vihar, Aurobindo Marg, Rayagada	2000	60
14	Gandhi Institute of Computer Studies, Gobiriguda, Kharling,	2003	60

	Gunupur		
15	Gandhi Institute of Technology and Management(GITAM), Saraswati Vihar, Gramadiha, Gangapada, Janala, Bhubaneswar, Khorda	2008	60
16	Gayatri Institute of Computer & Management Studies (GICMS), Gyan Vihar, Regeda, Gunupur	1999	45
17	Indian Institute of Science and Information Technology(IISIT), Prasnagarbha, Mancheswar Industrial Estate, Bhubaneswar	1995	90
18	Institute of Professional Studies and Research, IPSAR House, SEC-6, CDA, Cuttack	1993	60
19	Koustuv Institute of Self Domain, Patia, Chandrasekharpur Bhubaneswar	2001	60
20	Koustuv Institute of Technology, CNI Complex Chandrasekharpur, Bhubaneswar	2008	60
21	Kushagra Institute of Information and Management Science, Pira Bazar, Gopalpur, In Front of Sadar Police Station	1999	120
22	Mahavir Institute of Engineering and Technology, Mahavir Nagar, Bhubaneswar, Paniora,Khurda	2002	60
23	Nalanda Institute of Technology, Bhudhist Villa, Nebad Bhuasani Temple Square, Chandaka, Bhubaneswar	2007	60
24	National Institute of Science and Technology, Palur Hills, Beharpur	1996	60
25	NIIS Institute of Business Administration, Madanpur, Bhubaneswar, Khurda	2008	60
26	NM Institute of Engineering & Technology, Sijua, Patrapada, Bhubaneswar	2005	60
27	Orisha Computer Academy, Prashanti Vihar, Kausalyaganga, Bhubaneswar	1996	120
28	PJ College of Management & Technology, Swatik Nagar, Kesora, Bhubaneswar	2007	60
29	Purushottam Institute of Engineering & Technology, Mandiakudar, Kansbahal	1999	60
30	Raajdhani Engineering College, Mancheswar Bhubaneswar, Khurda	2006	60
31	Regional College of Management Autonomous, Chandrasekharpur Bhubaneswar	1982	120
32	Roland Institute of Technology, Surya Vihar, Beharpur	2002	60
33	Rourkela Institute of Management Studies, Rourkela	1984	60
34	Rourkela Institute of Technology, Kalunga	1984	60
35	Seemanta Engineering College, Mayurvihar, Jaunti, Jharpokharia	1997	60
36	Silicon Institute of Technology, Silicon Hills, Patia, Bhubaneswar	2001	60
37	Srusti Academy of Management, Chandaka Industrial Estate, Patia, Bhubaneswar	2003	60
38	The Techno School, Patrapada, Bhubaneswar	2008	60
39	Trident Academy of Creative Technology, Chandrasekharpur, Bhubaneswar	1998	120
40	Trident Academy of Technology, Chandrasekharpur Bhubaneswar		60
41	United School of Business Management, Chandaka I.E Patia, Bhubaneswar		60

**TABLE – 16 (A) Government Colleges offering MBA Programme**

Sl. No.	Name of The College	Commencement of the course since	Total No. of Seats
1	Berhampur University, Bhanja Vihar		30
2	Centre for IT Education, Bhubaneswar (Self Sustaining Course )	2004	120
3	Fakirmohan University, Balesore		40
4	Institute of Management & Information Technology, Cuttack	1962	90
5	Madhusudhan Institute of Cooperative Management, Bhubaneswar		60
6	North Odisha University, Baripada		30
7	Utkal University, Vani Vihar		30

**(B) Colleges offering MBA under Public Private Partnership Mode**

1	Dhenkanal Autonomous College, Dhenkanal	2009	60
2	Gangadhar Meher College (Autonomous), Sambalpur	2005	60
3	MPC (Auto) College	2005	60
4	SCS Autonomous College, Puri	2009	60

**TABLE - 17 Private Colleges offering MBA Programme**

Sl. No.	Name of The College	Commencement of the course since	Total No. of Seats
1	Academy of Business Administration, Balesore	1993	120
2	Academy of Management & Information Technology, Bhubaneswar	2010	60
3	Ajay Binay Institute of Technology, Cuttack	2007	60
4	Apex Institute of Technology and Management, Pahal, Bhubaneswar	2009	60
5	Astha School of Management, Bhubaneswar	2008	120
6	Balasore College of Engineering and Technology, Balasore	2001	60
7	Barabati Institute of Management Studies, Cuttack	2009	60
8	Bhadrak Institute of Engineering & Technology, Bhadrak	2002	60
9	Bhubaneswar Engineering College, Pittapally, Bhubaneswar		60
10	Bhubaneswar Institute of Management & Information Technology, Bhubaneswar	1996	120
11	Biju Patnaik Institute of Information Technology & Management, Bhubaneswar	1999	180
12	BRM Institute of Management & Information Technology, Bhubaneswar	2003	120
13	Capital Institute of Management and Science, Bhubaneswar	2010	60
14	Centre for Management Studies, Orissa Engineering	2002	60

	College, Nijigarh Kurkl, Harirajpur, Jatni		
15	College of Engineering Bhubaneswar, Bhubaneswar	2007	60
16	C.V. Raman College of Engineering, Bhubaneswar	2007	60
17	Dhaneswar Rath Institute Of Engineering And Management Studies (DRIEMS) MBA	2005	180
18	Dr. Ambedkar Memorial Institute of Information Technology, Rourkela	2001	60
19	Gandhi Engineering College Bhubaneswar	2006	60
20	Gandhi Institute for Technological Advancement, Bhubaneswar	2009	60
21	Gandhi Institute for Technology, Bhubaneswar	2008	60
22	Gandhi Institute of Advanced Computer & Research, Rayagada	2007	60
23	Gandhi Institute of Management Studies, Gunupur	2002	120
24	Gayatri College of Management, Sambalpur	2009	120
25	Gayatri Institute of Computer & Management Studies, Gunupur	--	60
26	Global Institute of Management, Bhubaneswar	1997	120
27	Gurukul Institute of Technology, Janla	2009	60
28	Hi-Tech Institute of Technology, Khurda	2009	60
29	IIPM School of Management, Kansbahal	2007	60
30	Institute of Professional Studies and Research, Cuttack Research	1993	120
31	Kalam Institute of Technology, Berhampur	2009	60
32	Konark Institute of Science & Technology, Jatni, Khurda	2008	60
33	Koustuva Institute of Technology, Bhubaneswar	2008	60
34	Koustuva Institute of Self Domain, Bhubaneswar	2007	60
35	Krupajal Management Studies, Puba Sasana, Kausalya Ganga	1997	240
36	Kushagra Institute of Information and Management, Cuttack	2008	60
37	Mahavir Institute of Engineering and Technology, Bhubaneswar	2008	60
38	Modern Engineering & Management Studies, Balesore	2009	60
39	Modern Institute of Technology & Management, Khurda	2009	60
40	National Institute of Science and Technology, Beharmpur	2007	60
41	NIIS Institute of Business Administration, Bhubaneswar	2008	120
42	NIIST International Institute of Management, Bhubaneswar	2009	60
43	NM Institute of Engineering & Technology, Bhubaneswar	2007	60
44	Purushottam Institute of Engineering & Technology, Kansbahal	2008	60
45	P.J. College of Management & Technology, Bhubaneswar	2007	60
46	Raajdhani Engineering College, Bhubaneswar	2008	60
47	Rajdhani College of Engineering and Management, Bhubaneswar	1999	180
48	Regional College of Management Autonomous, Chakadola Vihar, Chandrasekharpur	1982	300
49	RJ School of Management, Balesore	2008	60
50	Rourkela Institute of Management Studies, Rourkela	1984	180
51	Rourkela Institute of Technology, Kalunga	1984	60
52	Saraswat Institute of management , Kerenda, Khurda	2010	60
53	Satyananda Institute of Management and Information	2011	120

	Technology		
54	S.M.Institute of Technoly, P.G.Centre for Management Studies, Berhampur	1981	60
55	Srusti Academy of Management, Bhubaneswar	2003	120
56	Suddhananda School of Management & Computer Science, Phulnakhara	2009	60
57	The Techno School, Bhubaneswar	2007	60
58	Trident Academy of Creative Technology, Bhubaneswar	2009	60
59	Trident Academy of Technology, Bhubaneswar	2007	60
60	United School of Business Management, Bhubaneswar	2007	120
61	Vignan Institute of Technology & Management, Berhampur	2009	60

**TABLE- 18**

**Private colleges offering PGDM / PGCM and PGDM (Executive) programme who have participated in PREVIOUS YEAR**

Sl. No.	Name of the Institution	Seats
1	Affinity Business School, Jatni, Khurda	PGDM-120, PGDM(Mkt) - 60
2	Astral Institute of Management Studies, KIIT, Infocity Road, Patia	PGDM-60
3	Bhavan's Centre for Communication and Management, Bhubaneswar	PGDM-120
4	BRM International Institute of Management, Pandara, Rasulgarh, Bhubaneswar	PGDM-60
5	DRIEMS Business School, Kairapari, Tangi) Cuttack	PGDM - 120
6	Indian Institute of Science and Information Technology(IISIT), Bhubaneswar	PGDM - 60
7	IPSAR B-School, Cuttack	PGDM - 60
8	Koustuv Business School, Plot No-1(C), Sector-B CNI Complex Patia	PGDM - 120
9	Krupajal Business School, Puba Sasana, Kausalya Ganga.	PGDM – 180 PGDM(RM) - 60
10	NIST Business School, Berhampur	PGDM - 120

**TABLE- 19 A. Government Colleges offering M.Tech / M. Arch Programme**

S.N	Name of the Univ./Institution	Specialisation	Seats
1	BPUT, Odisha	Mechanical Systems Design and Dynamics	10
		VLSI & Embedded System	10
2	Berhampur University	Computer Science	20
		Electronic Information Systems	16
3	Central Institute of Plastic Engineering and Technology, Bhubaneswar	Polymer Nanotechnology	18
		Plastic Engineering	18
4	College of Engineering and Technology, Bhubaneswar	Computer Science and Engineering	13
		Industrial Engg. & Managements	18
		Information Technology	18
		Structural Engineering	18
		Architecture	20
5	F.M. University, Balasore	Computer Science	15
6	IMIT, Cuttack (Self Sustaining	Information Technology	18



	Course)		
7	IGIT, Sarang	Structural Engineering	18
		Mechanical System Design	18
		Production Engineering	18
		Power system Engineering	18
		Industrial Power Control and Drives (Part Time)	18
		Enviornmental Science & Engineering (Part Time)	18

### B. Private Colleges offering M.Tech Programme

S.N	Name of the Univ./Institution	Specialisation	Seats
1	Adarsha College of Engineering Saradhapur, Angul	Production Engineering	24
		Power Systems Engineering	24
		Environmental Science and Engineering	24
		Computer Scince and Engineering	24
2	Ajay Binay Institute of Technology, Sector-I,CDA , Cuttack	Computer Science and Engineering	18
3	Barrister Ranjit Mohanty International Institute of Technology, Bhubaneswar	Power Electronics and Drives	24
		Electronics and Telecommunications Engineering	24
4	Balasore College of Engineering & Technology, Sergarh, Balasore	Communication Engineering	18
		Heat Power and Thermal Engineering	18
5	Bhubaneswar Engineering College (BEC), Gramadiha, Pittapally Bhubaneswar.	Computer Science and Engineering	18
6	Bhadrak Institute of Engineering & Technology, Bhadrak	Mechanical Engineering	24
		Civil Engineering	24
		Computer Science and Engineering	24
		Electronics and Telecommunications Engineering	24
7	C. V. Raman College of Engineering, Bidyanagar Janla, Khurda, Bhubaneswar	Electronics and Telecommunications Engineering	18
		Chemical Engineering	18
		Information Technology	18
		Mechatronics	18
		Heat Power Engineering	18
		Electrical Engineering	18
		Computer Science and Engineering	18
		Computer Science and Engineering	18
8	College of Engineering, PLOT NO-1(A), CNI Complex, Patia, Chandrasekharpur, Bhubaneswar	Computer Science	18
		Communication Systems	18
		Heat Power Engineering	18
9	Dhaneswar Rath Institute of Engineering & Management Studies, Kairapari, Kotsahi (Tangi), Cuttack	Electronics and Telecommunications Engineering	18
		Electrical Power System	18
		Computer Science and Engineering	18
		VLSI Design and Embedded Systems	18
		Power Electronics and Drives	18

10	Eastern Academy of Science & Technology, Phulnakhra, Bhubaneswar	Environmental Engineering	18
		Electronics & Communication Engineering	18
		Computer Science and Engineering	18
		Mechanical System Design	18
11	Gandhi Academy of Technology and Engineering, Berhampur	Industrial Engg.& Management	18
		Structural Engineering	18
12	Gandhi Engineering College, Madanpur, Off NH 5 on Gahira Square, Badaraghunathpur, Khurda.	Electronics and Communications Engineering	18
		Structural Engineering	18
		Thermal Engineering	18
		Computer Science and Engineering	18
13	Gandhi Institute for Technological Advancement (GITA), Bhubaneswar	Power Systems Engineering	18
		Thermal Engineering	18
		Computer Science and Engineering	18
		Computer Science and Engineering	24
14	Gandhi Institute for Technology, Bhubaneswar	Automation and Robotics	24
		Construction Technology and Management	24
		Power Electronics and Electrical Drives	24
		Electronics & Communication Engineering	24
		Applied Electronics and Instrumentation Engineering	18
		Electronics & Communication Engg	18
15	Gandhi Institute of Engineering & Technology, Gobiriguda, Kharling, Gunupur, Rayagada	Structural Engineering	18
		Computer Science and Engineering	18
		Industrial Engineering	18
		Power Electronics	18
		CAD CAM	18
		Heat Power and Thermal Engineering	18
		Machine Design	18
		Power Electronics and Drives	18
16	Gandhi Institute of Industrial Technology, Berhampur	Electronics & Communication Engineering	18
17	Hi-Tech Institute of Technology, Bhubaneswar	Power Electronics and Drives	18
		VLSI and Embedded Systems Design	18
18	Konark Institute of Science and Technology, PO. Box No. 21, Technopark, Jatni, Bhubaneswar	Computer Science and Engineering	18
		Electronics and Telecommunications Engineering	18
		Thermal & Fluid Engineering	18
		Power Engineering and Energy Systems	18
		Nano Technology	18
19	Koustuv Institute of Self Domain, Plot NO: 1(B), Sector-B, Patia, Chandrasekharpur.	Computer Science and Engineering	18
		Communication Systems	18
		Information Technology	18
		Power Systems	18

20	Koustav Institute of Self domain	Electrical and Electronics Engineering	18
20	Krupajal Engineering College, Pubasasan, Kausalyaganga	Heat Power Engineering	18
		Power Electronics and Drives	18
		Electronics & Communication Engineering	18
		Computer Science and Engineering	18
		Computer Science and Technology	18
21	Mahavir Institute of Engineering and Technology, Mahavir Nagar, Bhubaneswar, Paniora, Palashpur, Khurda	Electronics and Telecommunications Engineering	18
		Computer Science and Engineering	18
		Power System Engineering	18
		Computer Engineering	18
22	Majhighariani Institute of Technology and Science, Sriram Vihar, Bhujabala, Kolnara, Rayagada	Bio Technology	18
		Mechanical Engineering	18
23	Nalanda Institute of Technology, Bhubaneswar	Electronics & Communication Engineering	18
		Thermal Engineering	18
		Power Electronics and Drives	18
		Computer Science and Engineering	18
24	National Institute of Science & Technology, Palur Hills, Berhampur	Electronics & Communications Engineering	18
		Computer Science and Engineering	18
		Electrical Engineering	18
		Wireless Communication Technology	18
		VLSI and Embedded Systems Design	18
		Electronics and Instrumentation Engineering	18
25	NM Institute of Engineering & Technology, Sijua, Patrapada, Bhubaneswar	Mechanical Engineering	18
		Electronics & Communications Engineering	18
		Electrical and Electronics Engineering	18
		Computer Science and Engineering	18
26	Orissa Engineering College, Nabajyoti Vihar, Nijigarh Kurki, Jatni, Harirajpur, Khurda	Computer Science and Engineering	18
		Mechanical Engineering	18
27	Raajdhani Engineering College, Near Mancheswar Rly. Station, Mancheswar, Bhubaneswar	Communication Systems	18
		Power System Engineering	18
		Production Engineering	18
		Structural Engineering	18
28	Satyasai Engineering College, Srikona ( Chandipur Sea Beach Road ) Panjibag, Sunhat, Balasore	Mechanical Engineering	18
		Computer Science and Engineering	18
		Electronics and communication Engineering	18
29	Seemanta Engineering College, Jharpokharia	Electrical Engineering	18
		Mechanical Engineering	18
30	Silicon Institute of Technology, Silicon Hills, Patia, Khurda, Bhubaneswar	Electronics and Communication Engineering	18

		Computer Science and Engineering	18
		Electrical and Electronics Engineering	18
31	Synergy Institute of Engineering & Technology, Banamaliprasad, By The Side of NH-42, Dhenkanal	Power Electronics and Drives	18
		VLSI and Embedded Systems	18
		Electronics & Communication Engineering	18
		Production Engineering	18
		Computer Science and Engineering	36
32	TempleCity Institute of Technology & Engineering (TITE), Bhubaneswar, Plot No. F/12, IID Centre Knowledge Campus, Barunei, Khurda	Computer Science and Engineering	18
33	Trident Academy of Technology, Bhubaneswar	Computer Science and Engineering	18
		Electronics and Telecommunications Engineering	18
34	The Techno School, 361-A, Patrapada, Khurda, Bhubaneswar	Electronics & Communication Engineering	18
		Computer Science and Engineering	18
		Electrical and Electronics Engineering	18
35	Gandhi Institute of Excellent Technocrats	Mechanical System Design	18
		VLSI and Embeded system Design	18
36	Kalam Institute of Technology	Machine Design and Robotics	24
		Power Electronics and Electrical Drives	24
37	International Institute of Information Technology, Bhubaneswar	Computer Science and Engineering	25
38	Jagannath Institute for Technology and Management	Communication System	18
		Mechanical Engineering	18
		VLSI Design	18
39	Sibani Institute of Technology	Power Electronics and Drives in Electrical Engineering	18
		Thermal Engineering	18

**TABLE- 20 A. Government Colleges offering M.Pharm Programme**

S.N	Name of the Univ./Institution	Specialisation	Seats
1	Berhampur University	Pharmaceutical Technology	20
		Pharmaceutics	20
		Pharmaceutical Analysis and Quality Assurance	20

**B. Private Colleges offering M.Pharm Programme**

S.N	Name of the Univ./Institution	Specialisation	Seats
1	College of Pharmaceutical Science, Marine Drive Road Baliguali, Puri	Pharmaceutics	18
2	College of Pharmaceutical Sciences, Berhampur, Mohuda Ganjam	Pharmaceutics	18
		Pharmaceutical Analysis and Quality Assurance	18
		Pharmaceutical Chemistry	10
3	Dadhichi College of Pharmacy, Vidya Vihar,	Pharmacology	18

	Sundergram, Cuttack	Pharmaceutics	18
4	Gayatri College of Pharmacy, Gayatri Vihar, Jamadarpali Sambalpur	Pharmaceutics	18
		Pharmaceutical Analysis and Quality Assurance	18
		Pharmacognosy	18
		Pharmaceutical Technology	18
		Pharmacology	18
5	Gayatri Institute of Science and Technology (GIST), Gyan Vihar, Gunupur	Pharmaceutics	18
		Pharmaceutical Analysis and Quality Assurance	18
6	IMT Pharmacy College, Sai Bihar , New Nabakalebara Road, Puri	Pharmaceutics	18
7	Indira Gandhi Institute of Pharmaceutical Sciences, I.R.C. Village, Bhubaneswar	Pharmaceutics	24
		Pharmaceutical Analysis and Quality Assurance	18
		Pharmacognosy	18
		Pharmaceutical Chemistry	18
		Pharmaceutics (Drug Regulatory Affairs)	18
		Pharmacology	24
8	Institute of Pharmacy & Technology, Salipur, Cuttack	Pharmaceutical Chemistry	12
		Pharmaceutical Analysis and Quality Assurance	18
		Pharmaceutics	18
9	Jeypore College of Pharmacy, Rondapalli, Jeypore, Koraput	Pharma Technology	18
		Pharmacognosy	10
		Pharmacology	18
		Pharmaceutical Analysis and Quality Assurance	18
10	Kanak Manjari Institute of Pharmaceutical Sciences, Chhend Colony, Rourkela	Pharmaceutics	18
		Pharmacology	18
		Pharmaceutical Biotechnology	18
		Pharmaceutical Analysis And Quality Assurance	10
		Pharmaceutical Chemistry	18
11	Roland Institute of Pharmaceutical Sciences, Khodasingi	Pharmaceutics	18
		Pharmaceutical Analysis And Quality Assurance	24
		Pharmacology	24
		Pharmaceutical Chemistry	18
12	Royal College of Pharmacy & Health Science, Andhapasara Road	Pharmaceutical Technology	18
		Pharmaceutical Analysis and Quality Assurance	18
		Pharmacology	18
		Pharmaceutics	18
13	Seemanta Institute of Pharmaceutical Sciences, Jharpokharia, Mayurbhanj	Pharmaceutics	18
		Pharmaceutical Chemistry	18
14	Sri Jayadev College of Pharmaceutical Sciences, Naharkanta, Baliana, Khurda, Bhubaneswar	Pharmaceutics	18
		Pharmaceutical Chemistry	10
		Pharmacology	18
		Pharmaceutical Analysis and Quality Assurance	18

15	The Pharmaceutical College, Samaleswari Vihar, Tingipali, Mohada, Barpali	Pharmaceutics	18
		Pharmacognosy	10
		Pharmacology	18

\* The tuition fee will be communicated before the counselling for admission through OJEE website and in the counselling brochure after due approval from Government.

\*All the seats mentioned above are as approved by AICTE/UGC/ GOVT. OF ODISHA for the previous academic year, which should only be used as an indicator.

\*Counselling through OJEE-2014 will be done for admission to these courses subject to approval of AICTE/UGC / Government of Odisha / BPUT / Other Universities of Odisha/ Central Council of Homoeopathy and Central Council of Indian Medicine / Other affiliating Councils.

**ODISHA JOINT ENTRANCE EXAMINATION (OJEE-2014)**

**APPENDIX – I(See Rule-3)**

**Office of the.....Miscellaneous Certificate Case No. ....of 2014**

**‘RESIDENT/NATIVITY CERTIFICATE OF ODISHA’**

This is to certify that Shri/ Smt/ Miss..... son/ daughter/wife of Shri .....is a native of the District of .....in the State of Odisha and he/his family ordinarily reside in Village/Town .....P.S....., Tahasil..... in the District of.....

The certificate is being granted only for the purpose of OJEE, 2014 Odisha.

**Full Signature of the Applicant**

**Signature of Revenue Officer**

Date :

Round Seal of the Office

Designation (with Seal of Office)

- Note:**
1. Revenue Officer means the Chief Officer in charge of Revenue Administrative in the District, Sub-Division of Tahasil and includes an Additional District Magistrate and Additional Tahasildar.
  2. No part of the form should be mutilated in any manner. In case of mutilation the certificate is liable to be rejected.

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**ODISHA JOINT ENTRANCE EXAMINATION (OJEE-2014)**

**APPENDIX – II**

**CERTIFICATE OF EMPLOYMENT OF CANDIDATE’S PARENT / SPOUSE**

Employer - Government of Odisha / Government of India / Government of India Undertakings and Government of Odisha Undertakings located in Odisha at the time of application (Strike off whichever is not applicable). This shall not be considered as a proof of resident certificate for candidates opting for admission under any reserved category.

1. Name and Address of Organisation / Office in which employed
2. Name and Designation of the certifying authority (Employer / Head of Office / Organisation)
3. a) Name in full and designation of employee to whom certificate is being issued.  
b) Whether in permanent employment  
c) Present Place and State of posting  
d) Permanent address as per service records
4. Name of the candidate in full
5. Relationship of the employee with the candidate: Father / Mother / Husband / Wife  
(Strike out whichever is not applicable)
6. Details of the Institution from which the candidate has passed / appeared at 10+2 /+3, any other Examination
7. Particulars of employment of the employee

Place ..... Date of Joining ..... Period of Service .....

**Full Signature of Employee**

Date.....

**Signature of the Employer / Head of Office / Organisation**

Date:

Designation with Seal of Office

**Note :** In case the employee is on deputation either from Government of Odisha or India, the above certificate should be signed by the original employer.

**ODISHA JOINT ENTRANCE EXAMINATION (OJEE-2014)**

**APPENDIX – III**

**‘SC/ST CERTIFICATE BY BIRTH’ (See Rule-8(I))**

This is to certify that Sri / Smt / Kumari .....  
Son / daughter of ..... of  
Village / Town ..... P.S ..... Tahasil .....  
in the district of ..... of the State of Odisha belongs to the .....  
Caste / Tribe which is recognized as Scheduled Caste / Tribe under Constitution (Scheduled Castes) Order 1950 /  
the Constitution (Scheduled Tribes) Order, 1950 as amended by the Scheduled Castes and Scheduled Tribes  
(Amendment) Orders Act 1976.

Sri / Smt / Kumari ..... and his/her family ordinarily reside(s) in  
Village/Town..... of ..... District of the State of Odisha.

**Full Signature of the Applicant**

Round Seal of Office

**Signature**

Designation with seal of the office

Date

**Note :** This certificate should be issued by Tahasildar of the place of residence of parent in Odisha. No part of the form should be mutilated in any manner. In case of mutilation the certificate is liable to be rejected.

**ODISHA JOINT ENTRANCE EXAMINATION (OJEE-2014)**

**APPENDIX – IV(Clause 2.1.5 of Information Brochure of JEE - 2014, Odisha)  
Certificate of Ex-Servicemen**

1. Name of the Candidate
2. Full name of employee / person
3. Permanent address as per service records
4. Rank in Defence Service
5. Full name of the Candidate
6. Relationship of the employee / person with the Candidate
7. Last place of posting including details of unit
8. Awards received if any

**Full Signature of Station Commander /  
Officer Commanding /  
Officer-in-charge / Secretary  
Zilla / Rajya Sainik Board**

Designation with Seal of Office

**Full Signature of  
Candidate’s Parent** .....  
Date .....



**ODISHA JOINT ENTRANCE EXAMINATION (OJEE-2014)**  
**APPENDIX – V**  
**CERTIFICATE OF AUTHENTICITY OF ORIYAS (ODIAS) BELONGING TO OUTLYING ORIYA (ODIA)**  
**SPEAKING TRACT [OL CATEGORY]**

This is to certify that Mr./Ms. ....  
Son / Daughter / Spouse of Mr./Mrs ..... of  
Village / Town ..... P.S ..... Tahasil .....  
in the district of .....of the State of ..... whose full signature is given below is an Oriya(Odia) and  
belongs to an outlying Oriya(Odia) speaking tract as defined in resolution No-13411-Gen. Dated 8<sup>th</sup> August ,1969, of  
Government of Odisha erstwhile political & services Department (Now: G.A Department) as specified below.

**Full Signature of the Applicant**

**Signature of the officer not below the  
Rank of Tahasildar (Outside Odisha)**  
Date  
Designation with Seal of Office

**ODISHA JOINT ENTRANCE EXAMINATION (OJEE-2014)**  
**APPENDIX – VI**  
**CERTIFICATE FROM THE HEAD OF THE INSTITUTE LAST ATTENDED**

(a) Certified that .....(Name of the candidate in full) son/daughter of..... (Name of the father in full) born on .....was a bonafide student of this institute from.....to.....and has passed .....examination in the year..... as per the record of the institute.

(b) Certified that the photograph pasted on the space provided below on this page is attested by me.

The candidate should affix the same photograph which he/she has uploaded during form fill-up of online application form. The candidate has to get this photograph attested by the Head of the Institution last attended. The official seal of the head of the institute should cover part of this photograph.

**Full Signature of the Applicant**

Seal of the Institution

**Issue / reference No.....**

**Date:**

**Signature of Head of the Institution last attended**

Name:

Designation (with Seal of Office)

**N.B.: The candidate should affix the same photograph which he/she has pasted on the confirmation page.**

**ODISHA JOINT ENTRANCE EXAMINATION (OJEE-2014)**

**APPENDIX – VII**

**INCOME CERTIFICATE(See Rule- 3)**

Office of the .....  
**Miscellaneous Certificate Case No. ....of 2014.**

This is to certify that, Sri / Smt / Miss ..... Son /  
Wife/Daughter of.....Village.....  
P.O.....P.S.....Tahasil ..... In the  
District of .....In the state of Odisha has an annual  
income Rs. ....  
(Rupees.....) only  
from the sources specified below.

**SOURCE                      ANNUAL INCOME**

**Agriculture Land----- Rs.**

**Salaries ----- Rs.**

**Business----- Rs.**

**Any other sources**

**to be specified----- Rs.**

-----  
**Total      Rs.**

This Certificate is being granted only for purpose of .....

**Full Signature of the Applicant**

**Signature of Revenue Officer**

Date :

Round Seal of the Office

Designation (with Seal of Office)

- Note:** 1. Revenue Officer means the Chief Officer in charge of Revenue Administrative in the District, Sub-Division of Tahasil and includes an Additional District Magistrate and Additional Tahasildar.
2. No part of the form should be mutilated in any manner. In case of mutilation the certificate is liable to be rejected.

**ODISHA JOINT ENTRANCE EXAMINATION (OJEE – 2014)**

**APPENDIX – VIII**

**(To be deposited at the Institution/University level)**

**DECLARATION**

Name of the candidate .....OJEE-  
2014 Roll No..... Rank No. .... Category .....  
Stream .....

1. This is to undertake that I have taken admission in the College/Institute  
..... in  
..... out of my own accord.  
This allotment is based on the choice exercised by me during counselling process.
2. I have surrendered my OJEE-2014, Odisha Rank Card. I also understand that the Rank card is no more valid and against the same, I cannot take admission in other discipline in the same college or in another college in any discipline.
3. I understand that no change of branch or choice of college is permitted in the first year. Subject to regulation of the University and performance in first year branch change may be permitted in second year only.
4. I understand that out of Rs..... paid by me after deducting Rs. 4,500/- (for under graduate / post graduate) towards University and Insurance Fees, the balance amount will be adjusted towards the fees, payable at college level while joining the college.
5. We understand that, we will not claim any refund of Rs.....(in full or Part) deposited at the time of counselling process, even in the case of not joining/withdrawal from the allotted college/course.
6. I also understand that the fee that I am paying during admission is provisional. I have to pay the balance if the actual fee is more or will be refunded if the fee is less.
7. I understand that I shall report to the college within the dates mentioned in the allotment letter of OJEE-2014.
8. We declared that, we have read and understood the above provisions completely and will also abide by them.

Further, this is to certify that, I have downloaded the correct allotment letter for admission.

Date:

Signature of the Guardian

Signature of the Candidate

**ODISHA JOINT ENTRANCE EXAMINATION (OJEE – 2014)**  
**APPENDIX – IX**  
**FACILITATION CENTRE**

JEE Cell, Gandamunda, Khandagiri-751030

Bhubaneswar

**ODISHA JOINT ENTRANCE EXAMINATION (OJEE – 2014)**

**SPECIAL INSTRUCTIONS**

**Guidelines to Candidates:**

1. Please check the Admit Card carefully for your Name, Paper, Date of Birth, Gender, Test Center Name, and Category. In case of any discrepancy, communicate to OJEE -14 office immediately for necessary action.
2. The Admit Card is issued provisionally to the candidate subject to his/her satisfying the eligibility conditions.
3. The examination rooms/hall will be opened 30 minutes before the commencement of the test. Candidates should take their seats immediately after opening of the examination hall. If the candidates do not report in time, they are likely to miss some of the general instructions to be announced in the Examination Hall.
4. The candidate must show, on demand, the Admit Card for admission in the examination room/hall. A candidate who does not possess the Admit Card issued by the OJEE-14 shall not be permitted for the examination under any circumstances by the Centre Superintendent.
5. Candidates are advised to bring with them a cardboard or a clip board on which nothing should be written, so that they have no difficulty in filling responses in the Answer Sheet even if the tables provided in the examination room/hall do have smooth surface or uneven surface. They should also bring with them their own Ball Point Pens (Black/Blue) of good quality.
6. No candidate, under any circumstances, will be allowed to enter the Examination Center after the commencement of the examination.
7. A seat indicating roll number will be allocated to each candidate. Candidate should find out and occupy their allotted seat only. Any candidate found to have changed room or the seat on his/her own other than allotted, his/her candidature shall be cancelled and no plea would be accepted for it.
8. Ten minutes before the commencement of the paper, each candidate will be given sealed Test Booklet with an Answer Sheet placed inside it.
9. Immediately on receipt of the Test Booklet the candidate will fill in the required particulars on the cover page of the Test Booklet with Ball Point Pen only. He/She will not open the Test Booklet until asked to do so by the Invigilator. Do not open/break the seal before the announcement. Student is advised to read the instructions written on the booklet regarding the examination.
10. No candidate, without the special permission of the Centre Superintendent or the Invigilator concerned, will leave his/her seat or Examination Room until the full duration of the paper. Candidates must follow the instructions strictly as instructed by the Centre Superintendent/Invigilators.
11. No Candidate will be allowed to carry any baggage inside the Examination Center. OJEE officials/ Center Superintendent will not be responsible for any belongings stolen or lost at the premises.
12. Candidates are not allowed to carry any textual material, Calculators, Docu Pen, Slide Rules, Log Tables, Electronic Watches with facilities of calculator, printed or written material, bits of papers, mobile phone, pager or any other device
13. Smoking and eating is strictly prohibited in the examination room.
14. Tea, coffee, cold drinks or snacks are not allowed to be taken into the examination rooms during examination hours.
15. No candidate, without the special permission of the Centre Superintendent or the Invigilator concerned, will leave his/her seat or Examination Room until the full duration of the paper. Candidates should not leave the room/hall without handing over their Answer Sheets to the Invigilators on duty.

## **Instructions for Examination**

1. Five minutes before the commencement of the paper the candidate will be asked to break/open the seal of the Test Booklet. He/She will take out the Answer Sheet carefully. The candidate should check carefully that the Test Booklet Code printed on left top of the Answer Sheet is the same as printed on the Question Booklet. In case of discrepancy, the candidate should immediately report the matter to the Invigilator for replacement of both the Test Booklet or Answer Sheet or both
2. Candidate will then write particulars with Blue/Black ball point pen only on the Answer Sheet(OMR). Use of pencil is strictly prohibited. If one uses the pencil, his/her answer sheet will be rejected and no correspondence will be entertained in this regard. After completing this step, the candidates will wait for the instruction by the invigilator.
3. The test will start exactly at the time mentioned in the Admit Card and an announcement to this effect will be made by the invigilator.
4. The test will be of 2 hrs or 1 hr duration for different papers. It is clearly notified in the information brochure/booklet and will be mentioned in admit card.
5. The test paper will be consisting questions of equal weightage.
6. Each question is allotted 4 (four) marks for the correct response. No deduction or addition is made from the total score if no response is indicated for a question. Blank OMR submitted without any response will be treated cancelled and no rank will be awarded to the student.
7. There is only one correct response for each question out of four responses given
8. During the examination time, the invigilator will check Admit Card of the candidate to satisfy himself/herself about the identity of each candidate. The invigilator will also put his/her signatures in the place provided in the Answer Sheet / attendance sheet.
10. Candidate shall bring his/her own Ball Point Pens of good quality. These will not be supplied by the OJEE.
11. A signal will be given at the beginning of the examination and at end of the examination. No warning bell or any other bell will be before commencement or before end of examination.
12. The candidate will check that the Test-booklet contains as many numbers of pages as are written on the bottom of the first page of the Test Booklet. The candidates should also verify the series of the Test Booklet with the series of OMR sheet. In case of any variation, the Test Booklet/ OMR sheet should be immediately returned to the invigilator for the replacement with another set of same series available in the examination hall/centre.
13. The candidates must sign on the Attendance Sheet at the appropriate place. The candidates are also required to put their left hand thumb impression in the space provided in the Attendance Sheet.
14. The candidates are governed by all Rules and Regulations of the Board with regard to their conduct in the Examination Hall. All cases of unfair means will be dealt with as per rules.

## **9. CODE OF CONDUCT FOR CANDIDATES DURING OJEE - 2014**

Candidates shall maintain perfect silence and attend to their Question Paper only. Any conversation, gesture, or disturbance in the Examination Room/Hall shall be deemed as misbehavior. If a candidate is found using unfair means or impersonating, his/her candidature shall be cancelled and he/she will be liable to be debarred for taking examination either permanently or for a specified period according to the nature of offence. Candidates are not allowed to carry any textual material, Calculators, Docu Pen, Slide Rules, Log Tables, Electronic Watches with facilities of calculator, printed or written material, bits of papers, mobile phone, pager or any other device. Possession of any of the above item, his/her candidature will be treated as unfair means and his/her current examination will be cancelled. The candidate shall not remove any page(s) from the Test-Booklet and if he/she is found to have removed any page(s) from his/her Test Booklet, he/she will be presumed to have used unfair means and shall be liable for criminal action.

Candidate must ensure that he/she has returned the OMR sheet to the invigilator keeping the carbon copy with himself/ herself. Leaving the examination hall without submitting the OMR sheet knowingly/ unknowingly will be treated as criminal offence and action will be taken as per law.

He/She need not return the question booklet to the invigilator.

## IMPORTANT NOTES FOR THE APPLICANT REGARDING ADMISSION

1. Nativity certificate is mandatory for taking admission against any reserve category like: Schedule Caste (SC), Schedule Tribe (ST), children/wards of Ex-Servicemen (ES), Physically Challenged (PC), Women (WO), Green Card (GC), Tuition Fee Waiver (TFW) in all courses. Nativity certificate is to be produced at the time of document verification during counselling. All such applicants are required to keep the up-to-date nativity certificate ready well in advance before counselling. The candidate has to submit the nativity certificate in the prescribed format i.e., Appendix-I issued not earlier than January 2014. The nativity certificate is mandatory for admission under Lateral Entry for the candidates who are natives of Odisha. The aforesaid condition on nativity certificate is not applicable for outside state candidates.
2. **Mark sheet and Certificate/Provisional Certificate of the qualifying examination must be produced on the day of document verification at the nodal center without which the applicant will not be allowed to participate in the counselling process.**
3. Original certificates, mark sheets and other documents will be verified at the time of document verification at nodal center with respect to eligibility, category and reservation that are claimed and shall be returned to the applicant immediately after the verification. However, original certificates made from appendices and photocopies of the certificates, marksheets, and other relevant documents will be kept during document verification at the nodal center. The candidate has to submit the required certificate in the prescribed format i.e., in given in the Appendix – I to VIII issued not earlier than January 2014.
4. **Claim for admission will be rejected if the candidate cannot submit the original certificates, mark sheets, other necessary documents at the time of document verification or if one has filled the form wrongly.**
5. **Admission may be cancelled at any time, if certificates/ mark sheets/ other documents are found to be forged or manipulated. A candidate will not be considered for admission if he/she fails to substantiate the claim with respect to reservation, category, nativity, date of birth, qualification etc.**

APPLICATION FEE FOR OJEE-2014	ALL COURSE CODES ( EXCLUDING 33,34,35)	Rs. 1000
	COURSE CODE 33,34,35 These are combinations of MBA+MCA, MBA+MCA LE, MBA+PGAT (TECH) respectively.	Rs. 1500

# Salient Dates for OJEE-2014

1. Last date for fill-up of online Application forms. : 15<sup>th</sup> March, 2014
2. Date of download of Admit Card begins from : 20<sup>th</sup> April, 2014
3. Date of Examination : 11<sup>th</sup> May, 2014
4. Probable Date of Declaration of Result : 1<sup>st</sup> week of June, 2014

## ADDRESS FOR COMMUNICATION

**Chairman,**

**Odisha Joint Entrance Examination-2014**

**JEE Cell, Gandamunda, Khandagiri,**

**DIST- Khordha. Bhubaneswar -751030**

**Website : [www.ojee2014.com](http://www.ojee2014.com) / [www.odishajee.com](http://www.odishajee.com)**

**E-Mail : [contactojee2014@gmail.com](mailto:contactojee2014@gmail.com)**

**Phone:0674-3242455, 3242456, 6552455, 6552456**

**Fax :0674-2352457**

**Ragging in any form is strictly prohibited in an institute as per the order of the Hon'ble Supreme Court of India.**